A World More Intimate: Exploring the Role of Mobile Phones in Maintaining and Extending Social Networks

by

Rhonda N. McEwen

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Faculty of Information
University of Toronto

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2010

Abstract

While there are exemplary studies on the relationships between social networks and media such as television and the Internet, less is known about the social network consequences of mobile phone use during life-stage transitions. This study investigates the roles that mobile phones play in supporting the relationships of young people as they transition to and through their first-year of university in Toronto, Canada. Focussing on information practices during a transition that tests the resilience of support networks, this study queried the extent to which mobile phones play a role in keeping relationships intact, enabling students to maintain a sense of social cohesion and belonging. Data were collected from November 2007 to September 2008 through a longitudinal research design. Socio-technical concepts and network analysis techniques were applied to analyze the ways in which mobile communication is embedded in the everyday social life of young people aged 17-34. Set within the culturally-specific context of urban Canada, the data provided substantial evidence that mobile phones foster social cohesion within intimate relations but provide a more tenuous platform from which to nurture new relationships. First-year undergraduates have integrated the mobile phone into the way
they engage with their social networks to a considerable degree, with commuter students experiencing additional tensions in negotiating relationships from home and on-campus. Findings showed that mobile phones were the devices of choice to mitigate feelings of loneliness, with deleterious consequences for the development of new relationships. Furthermore, the mobile phone was a key contributor to a rising sense of empowerment and autonomy for young adults as they negotiated identity transformations during their rite of passage into adulthood. Issues of trust and reciprocity in forming new relationships were mediated through a continuum of social media of which the mobile phone was the most intimate. Evidence of continuous access to social networks has broader implications for how mechanisms for coping with being alone and disconnection are acquired in this generation. Finally, observations of ritualistic interaction practices involving mobile phones may be theorized as small-scale evidence of larger societal shifts from collective constructs of community to that of networked individuals.
Acknowledgements

Although seemingly solitary and single-minded,
Some individual journeys are strengthened by the presence of
People, angels and companions
Who stand, float, and walk along quietly
Who may be unseen but who may not be forgotten.
To those people, angels, and companions who accompanied me,
I am forever grateful.

For Stuart – constant, steady, brilliant, and loving.
For LinTai and Ashe – for choosing me as your mother.
For my parents, grand-parents, and their parents who survived the passage – allyuh genes
get on bad!
For Nadia, David, Barry, Steve, and Rich – exemplars, coaches, and motivators.
For Melissa – friend, SPSS guru, and fellow coconut-chocolate cookie eater.
For Carol-Ann – who edited like no one else could.
For iSouth writing group 2008/9 – persistence, persistence, and presence.
For 2005 PhD cohort – we broke the mould!
For the FIS/iSchool family – quirky and fun community.
For my Trini-crew and my Canadian-crew – who never stopped believing.

I am forever grateful.

This dissertation was supported by a Social Science and Humanities Research Council
Canada Graduate Scholarship, 2006-2009.
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Chapter 1 - Introduction

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So far away from everyone, and everything starts today.
Keep it together, Can we keep it together?
We're singing a new song now, and everything starts today.

*Lyrics from "Keep it together," artist Guster (2003)*

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1.1. Motivation and Purpose of the Study

This study examines how first year students “keep-it-together” during their first year at university. More specifically, this study investigates the roles that mobile phones play in supporting the relationships of these young people as they transition to and through their first-year of university in Toronto, Canada. I focus on young people during a transition that tests the resilience of their social networks of friends and family and I ask whether, how, in what way, and to what extent their mobile phones play a role in keeping these networks intact with the result of enabling students to maintain a sense of social cohesion and belonging.

There are three key threads that weave their way through this study: (1) the consociation of mobile phones and personal relationships; (2) the emergent mobile information practices of young people; and (3) the way in which mobile communication mediates the challenges of transitions, and supports social cohesion (i.e. “keeping-it-together”). From these threads the keywords *mobile phones, relationships, young people, information practices, transitions* and *social cohesion* define the parameters of the study.

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1 “Social cohesion” is a term used within other fields of research to connote different ideas. For example, in Immigration and Settlement studies social cohesion may refer to societal impacts and pressures brought about by the arrival of newcomers to a specific locality. In this study the term social cohesion draws from sociological perspectives of Durkheim and Goffman and refers to resilience and coherence of relationships at the interpersonal level.
Inspection of these keywords also allude to a study that is about the interaction between the social and the technical, or as Eric Trist and Fred Emery first termed it in the 1960’s, this is a study about a “socio-technical” system. In other words, this is a study that considers the mobile phone as a technology and the ways in which this technology is embedded in everyday social life of young people as an integrated system.

The principal motivations for this study are two-fold: first, to collect empirical data on a communications medium that is poised to undergo a major shift in sophistication in Canada; and secondly, to offer a contribution to an ongoing debate on the social consequences of new media, and in particular, the interaction between new media and social cohesion. It must be noted that during the data-gathering period 2007-2008 the mobile phone was evolving from a fairly simple voice and text communications device to a portable computing platform facilitated by the market launch of several devices such as the Apple iPhone. Thus, although the data collected in this study offer novel insights into the use of mobile communications within the social networks of young people, the pace of technological development and integration of these technologies into daily life is such that this study is also analogous to a “before” photograph that may serve as a record and baseline for the near future of this medium.

The start of the new millennia ushered in a rising moral panic about new media and social relations. Increasingly, publications in both the popular press and within academia queried and continue to query the impact of what feels like a plethora of new devices on community, civic engagement and personal life. A case in point was the 2000 publication of Robert Putnam’s book *Bowling Alone* which fuelled mounting concerns in
the general public that watching too much television, among other things, leads to increasing disconnection from one another and a disintegration of the social structure.

Although Putnam’s research was based on data in the United States, similar assertions were made by researchers in other parts of the world including the UK (Forrest & Kearns, 2001; Beck, Giddens & Lash, 1994), Europe (Dorling, D., Vickers,D., Thomas, B., Pritchard, J., & Ballas, D., 2008) and India (Mitra, 1999). Concurrently, there were a number of studies that provided an alternative and more nuanced perspective on media effects and society asserting that new media, and in particular the Internet, reflects, reinforces and complements the ways in which people associate (Wellman & Gulia, 1999; DiMaggio, Hargittai, Neuman, & Robinson, 2001).

More recently, researchers have shifted attention from the Internet to the mobile phone, again considering media effects and sociality. As part of the ongoing debate on technology and social cohesion, this research also aims to go beyond the Internet and situate the mobile phone as a communications medium with the potential to reinforce social relationships and support social cohesion — hence the title of the study A world more intimate. Specifically, this study provides mobile phone specific data on the social and information practices of young people in Toronto, Canada.

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2 At the International Communications Association conference in 2007, a pre-conference meeting entitled Mobile Communication: Bringing us together or tearing us apart, drew interest from researchers around the world and stimulated debate about where this technology fit in the growing media landscape.
1.2. Background of the Study

This study investigates the roles that mobile phones play in supporting the relationships of young people as they transition to and through their first-year of university in Toronto, Canada. As a contribution to research on mobile communication and social networks, my focus centers around what happens to personal relationships during periods of intense life-stage change and the implications of mediated communication and information practices in times of transition.

While the transition from high-school to university brings excitement and increased perceptions of personal freedom for many young people, there is a growing body of research suggesting that attending university for the first time is also accompanied by increased levels of emotional stress. Although some students experience this transition as a challenge to personal growth, others are overwhelmed by the changes and experience emotional maladjustment and depression (Cutrona, 1982; Hammen, 1980; Lokitz & Sprandel, 1976; Wintre & Yaffe, 2000).

In addition, personal relationships are very important for identity development in young adults. From the perspective of maintaining relationships, this life-stage often corresponds to a time where young adults spend increasing amounts of time with others outside of the familial home, engage in identity experimentation, take up careers and/or start their own families. For many, these events include the first time that they are physically apart from friendship and kinship ties that previously provided a significant amount of expressive (e.g. emotional) and instrumental (e.g. financial) support. Given all of these changes it is not surprising that there is some desire to remain in contact with established friendship ties. During this time, young adults are also actively meeting new
people and are forming significant intimate relationships (Oksman & Rautiainen, 2002, p. 28). Within this focus of extending their social networks, young adults often display anxieties, insecurities and perceptions of risk in meeting strangers as they balance a desire for anonymity with a desire for intimacy and often employ the use of Information and Communication Technologies (ICTs) to mediate the formation of new relationships (Tomita, 2005).

The backdrop against which this study takes place includes (i) an unprecedented pace of mobile phone technology adoption in Canada, globally, and particularly among young people (i.e. 17-22 year olds); (ii) university life in downtown Toronto, Canada; and (iii) a persistent anxiety in the public’s discourse about personal safety that rose sharply during 9/11 and continues to pervade large urban centers around the world. These three elements provide a context within which the responses of participants should be understood. These are the macro-level factors that contribute to the lived experiences of individual participants, providing opportunities and constraints from which the study participants draw and contribute. This background section describes mobile phone adoption and a description of the mobile industry in Toronto, situates the University of Toronto and Ryerson University within the City of Toronto and introduces the influence of a “Culture of Fear.”

Backdrop (i): Unprecedented adoption of technology — The mobile phone

Mobile phones are among the fastest growing consumer products in history. In the year 2005 the number of mobile phone users worldwide crossed the two billion mark. To put two billion in context, it means that there are twice as many mobile phones than there
are Internet users of any kind;\textsuperscript{3} there are three times as many mobile phones than personal computers; there are more mobile phones than credit cards, automobiles and TV sets; and more mobile phones than fixed/wireline phones.\textsuperscript{4} In fact, one-in-three people in the global population carries a mobile phone while in Canada and the statistics indicate that one in every two persons are mobile phone subscribers (Canadian Wireless Telecommunications Association, 2007).

The mobile phone industry in Canada is dominated by three nation-wide carriers; Bell Mobility, Telus, and Rogers Communications each hold approximately a third of the subscriber market share across Canada, with Rogers Communications leading the competition in Ontario\textsuperscript{5}. Along with a handful of smaller providers and resellers these service providers generated approximately $12 billion (Can) in 2007, and facilitated a mobile phone market penetration rate of about 67\% throughout Canada and 80\% in metropolitan areas. With an introduction to mobile phone services 1985 by Cantel, Canadians were among the earliest consumers globally to have access to mobile phone services. Historically, Canadians were innovators in the technical evolution of mobile and wireless products through patents at organizations such as Nortel, Bell Canada, and more recently Research in Motion.

Despite this start there are indicators that by 2007 the industry was not keeping pace with those in comparable markets in terms of innovation, subscriber penetration, and pricing. According to a report by the International Telecommunications Union in 2007

\begin{itemize}
  \item \textsuperscript{3} Computer Industry Almanac, “Worldwide Internet Users Top 1 Billion in 2005,” \url{http://www.c-i-a.com/pr0106.htm}, last viewed on October 12\textsuperscript{th} 2006 at 10:00 pm.
  \item \textsuperscript{4} Ahonen, Tomi T & Moore, Alan Communities Dominate Brands latest book by \url{http://communities-dominate.blogs.com/brands/2005/09/monster_statist.html}
  \item \textsuperscript{5} Sources: CRTC and CWTA 2005 see \url{http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2006/trm2006.htm#n100b}. In Ontario the mobile subscriber market share percentages as reported in 2006 are Bell (38\%), Telus (18\%) and Rogers Communications (44\%).
\end{itemize}
Canada ranked 19th in a ICTs development index that measures the use of information and communications technologies in more than 150 countries. This represented a significant drop in the rankings for Canada when compared to the results in 2002 where Canada ranked 9th. Dr. Michael Geist, a prominent industry commentator and technology law professor, joined others in noting that this decline was largely attributable to increasing carrier consolidation, and therefore lack of competition within the mobile services industry in Canada. Geist suggests that a direct result of this increased consolidation is the high cost of mobile phone service in Canada as compared to similar services in other countries. In 2009, the Organization for Economic Cooperation and Development, a source of comparable statistics on economic and social policy, supported this view by reporting that from a survey its 30 member countries Canadian mobile phone users are among those with the most expensive bills in the world, holding usage constant.

In an effort to stimulate the mobile services industry, in 2008 the federal agency Industry Canada conducted an auction of radio spectrum allocated for the development of advanced wireless services. According to the Minister of Industry Jim Prentice, "...we are looking for greater competition in the market and further innovation in the industry. At the end of the day, our goals are lower prices, better service and more choice for consumers and business. That is why we are setting aside a portion of radio spectrum exclusively for new entrants into the wireless market," (Minister Prentice, November 28th 2007).

While the outcomes of the auction are still unfolding, the increase in governmental attention to the mobile services industry represents a part of the
background within which study participants used their mobile phones during the data collection for this research.

In spite of the ITU reporting on a drop in country-to-country comparative ranking, in absolute numbers the reach and pace of information exchange is still increasing in Canada. The social success of the Internet and the mobile phone communication media have brought about opportunities to remain in-touch with friends, family and colleagues both in the immediate environment and also across great geographical distances, offering what Barry Wellman has termed a *glocal* community. Simultaneously, the adoption of ICTs have brought additional challenges for individuals in modern society as social practices have evolved to produce expectations to “keep-up” and “join-in” with the many multi-modal technologies available such as pagers, email, instant messaging, blogs, networking sites, avatars, voice-mail and fixed and mobile telephones. This is a solid example of an information paradox since young people are presented with more channels for staying connected with others but must manage the expectations that go along with their choices. This tension shapes how and when the media mix is operationalized by young people on a daily basis.

Of the many social technologies available, mobile phones are particularly interesting as they offer communicative access to persons in our social network without regard to physical location so we can — in a manner of speaking — be always present, always “visible,” and always “on,” living in what Katz & Aakhus (2002) call a time of *perpetual contact*. Although this idea of being always accessible exaggerates to make the point, the mobile phone is the first communications technology that addresses a person directly rather than a place (Wellman, 2001). This brings with it a shift in the way users
and those interacting with users of mobile phones perceive availability and accessibility to each other (Ling, 2005).

This study is about young people. “Young people,” “teenagers” and “youths” are not standardized terms but are socially constructed efforts to define a human life-stage that is somewhere between childhood and adulthood (Hine, 1999). For this study the terms young people, young adults and youths are used interchangeably to refer to persons aged 17-34\(^6\)? According to the Population Institute,\(^7\) today's generation of young people is the largest in history. Nearly three billion people — close to half of the world's population — are under the age of 25. A key reason for my interest in young adults is that world-wide, this group also represents the most active users and the largest population of mobile phone adopters relative to users both younger and older to this range (Castells, Fernandez-Ardevol, Qiu & Sey, 2007, pp. 128-131).

In addition, researching the information practices of young people provides an opportunity to study the social consequences of media during life-stage transitions. As Naomi Baron, a researcher of Linguistics and New Media aptly puts it, “… the 18 to 22 or 23-year-old cohort is important demographically. The press has focused much of its attention on teenage use of new language technologies. College, however, is a time of transition, when young people put aside some of their adolescent ways and begin defining themselves as adults. To understand what the next group of thirty and forty-something users of language technologies might look like, it is vital to understand the emerging practices of this transitional group” (Baron 2008, p. 5).

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\(^6\) The age range of 18-34 years is a well-accepted categorization used by organizations such as the Canadian Wireless Telecommunications Association and Statistics Canada in the collection of data on young adults. For this study the participants were largely in the 17-22 year old range, which fits within the range for many research organizations.

There appears to be an almost natural affinity between new media and young people as evidenced by the ways in which new media appear embedded in young people’s everyday lives at home and at school (Hagen & Rice, 2007). Indeed, this affinity is considered to be an example of how media embeds itself into social networks (Licoppe & Smoreda, 2005). Even when young people are co-located and engaged in group recreation, “…exchanges mediated by technical means nonetheless constitute an important connective tissue coordinating and synchronizing group activities and meetings” (Licoppe & Smoreda, 2005, p. 326).

For late teens the transition from childhood to adulthood involves an internal psychological reorientation from parent-defined to peer-defined conceptualizations of self (Boneva et al., 2006, p. 202). During this transition, maintaining connections with friends and family is particularly important in dealing with insecurities that arise from these changes. Active communication with friends and family provides much-needed support and is facilitated by communications channels such as email, instant messaging, voice calls and text messaging. This partially accounts for the high-adoption of these technologies by people in this age range.

Finally, research has shown that first-year university students are early adopters of new media (Henke, 1985; Vincent & Basil, 1997). It is for these reasons that this study considers the use of mobile phones within the first-year of university life for 17-22 year olds. If there are distinctive features to mobile phone use in the management of communication within personal social networks, this age range offers one of the best sources for capturing this data.
While there are many exemplary studies on the relationships between social networks and media such as television and the Internet (Wellman 2001; Wellman & Haythorthwaite, 2002; Quan-Haase & Wellman 2002; Bardoel, 2002; Ling & Haddon, 2003; Meyrowitz, 1985; Putnam, 1995), less is known about the relationship between mobile phones and their users’ social networks. This study aspires to contribute to this growing research area by asking the primary research question, Is there evidence that mobile phones are used to maintain or extend personal networks?

Backdrop (ii): University Life in Urban Toronto

Since participants were selected from two campuses in downtown Toronto — the St. George Campus of the University of Toronto and the Bay and Dundas Street location for Ryerson University — the following section provides useful socio-cultural context within which to situate the mobile phone information practices identified in this study.

The City of Toronto is the fifth\(^8\) most populous urban centre in North America with 2.5 million people over 630 square kilometres (StatCan, 2006). Toronto is considered to be one of the world’s established gateways for immigrants and is deemed to be one of the most “hyper-diverse” metropolitan areas in the world by the Migration Policy Institute (2001), which means that not only do immigrants make up just over half of the total population, but that no one group dominates Toronto’s foreign-born residents.

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\(^8\) Mexico City, New York, Los Angeles, and Chicago are the four cities with higher populations.
Toronto is also the industrial and business centre of Canada — a country for which national incomes have surged in recent years, according to Statistics Canada (National Income and Expenditure Accounts 2008). Despite this, almost 30% of Toronto families were assessed by the United Way of Greater Toronto (2007)\(^9\) as experiencing poverty.

Toronto is a fairly youthful city with approximately 30% of the population being 24 years old or younger. It is also a city where just over half of the population aged 25-34 have attended university and hold a degree at Bachelor or higher level and/or a university diploma below Bachelor level.

In summary, the City of Toronto is multicultural, densely populated and similar to other North American urban centres simultaneously struggling with issues of economic success and poverty. Over half of Toronto’s population is comprised of immigrants from various parts of the world and over half of young persons aged 25-34 have attended a

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university. These are useful indicators of the general social environment from which the participants in this study are drawn.

*University of Toronto*

Founded in 1827 as “King’s College,” the University of Toronto is one of Canada’s oldest universities. University of Toronto has over 9,000 faculty and staff and more than 60,000 graduate and undergraduate students. Currently, the university includes three campuses: downtown Toronto (St. George campus), Mississauga, and Scarborough. Teaching and research take place within seventeen faculties, five schools, seven colleges, and 65 centres and institutes.

The National Survey of Student Engagement (NSSE) is used at over 400 U.S., and more recently at Canadian research universities, to assess (among other impressions), how first-year students perceive their undergraduate experience. This is a useful measure that provides a way to corroborate survey responses from students and offers a means to compare student experiences from the University of Toronto and Ryerson University.

In a report based on NSSE 2004 findings called *Measuring Up*, the University of Toronto planning department identified the experience of commuter students as a primary concern. Commuter students are defined as students who do not live within walking distance to the campus and comprised 73% of the first year student population. The report states that although 81.8% of first years would attend the University of Toronto if they could start all over again, “…commuter students in first year are more likely to see their fellow students as unsupportive and to experience a sense of isolation,” (Measuring Up, p. 5). These perceptions of lack of peer support and feelings of isolation are central to this study.
Ryerson University

Ryerson University was established in 1948 as Ryerson Institute of Technology, an institution focused on training technology professionals for the job market. In 1993 Ryerson was granted full university status and broadened its offerings to include research and graduate programs. Today, Ryerson has about 28,000 students enrolled in over forty programs from its five faculties: arts, business, communication and design, community services and engineering and applied science. The university has the largest undergraduate Faculty of Business in Canada. In the 2006 National survey of Student Engagement, over 75% of Ryerson University’s first year students responded that they were satisfied with their experiences at the university. At the same time, 23% of the same students reported that a better social environment was required. Ryerson’s planning office noted that it is a commuter institution with about 55% of students travelling over 40 minutes to get from home to campus, but that even among those living close to campus the proportion of students participating in co-curricular activities is fairly low. Ryerson’s administration views this as an area for improvement. The common experiences of first year commuter students at Ryerson University and the University of Toronto will be investigated in this study.

Backdrop (iii): Persistent Anxiety about Personal Safety

In March 2008, Solutions Research Group (SRG) Consultants, a private North American research company, released the results of a 2007 study on Blackberry users in Toronto. They interviewed 3,000 Canadians and found that Canadians have “disconnect anxiety” which refers to various feelings of disorientation and nervousness experienced

10 Source: Canadian-Universities.net, viewed Jan 20th, 2009.
when a person is deprived of Internet or wireless access for a period of time. Further, SRG stated that the principal reason touted by interviewees for their dependency on wireless devices is safety: “People feel the world is not as safe as it used to be, so parents are more likely to ensure their children have mobile phones from a young age.” This is despite City of Toronto local government statements that Toronto is “one of the safest cities in North America… our homicide and robbery rates are well below those of US cities of comparable size.”

That statement is supported by 2007 data from Statistics Canada indicating that Toronto had the second-lowest crime rate of all large urban regions in Canada, yet Canadian students and particularly females — regularly admit to faking mobile phone conversations as they walk from class after-dark, similar to students in the United States (Baron & Ling, 2007; Katz, 2006). In a paper aptly titled *Call if You Have Trouble: Mobile Phones and Safety among College Students*, the authors found that most students reported having a mobile phone and feeling that it made them feel safer at night (Nasar, Hecht & Wener, 2007). So what accounts the persistent fears about personal safety among the general and student population?

One theory is that within urban cities there is a politically motivated, intentional and constructed culture of fear that pervades everyday life. *Culture of Fear* is a term that refers to a perceived prevalence of fear and anxiety in public discourse and relationships and the ways in which they affect the way people interact with one another as individuals (Glassner, 1999). The rise and reach of mass media provides a perfect vehicle informing us that we can worry about an ever expanding list of things: the environment (global warming), terrorist attacks, lack of privacy, identity theft, killer bees, pandemics, mad

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cows, sick birds, lettuce with salmonella, racists, second-hand smoke, school shootings, sexually transmitted diseases, Muslims/religious fundamentalists, pharmaceutical side-effects, organ trafficking, drugs, pedophiles and mobile phone radiation.

Another theory is that this generalized fear is indicative of a broader social change, describing the end of the industrial society and the birth of a newer, and in the authors’ words, “riskier modernity” (Beck, Giddens & Lash, 1994, p. 6). This new society is characterized not only by indicators of collapse, such as growing poverty and environmental crises, but also by strong economic growth, rapid technification and high employment security or the “victories of capitalism,” that produce a new social form (pp. 3-8).

As a result of the destabilization of many constituents of the collective, such as villages, community groups and even the nuclear family — institutions through which people previously communally affected change — there are greater efforts placed on “individuals as individuals” to seize opportunities presented and avoid risks. This is termed individualization and in this new modernity people are required to find and invent new social relationships based on their individual needs and strive to develop certainties of their own accord.

While I have presented a very cursory view of Reflexive Modernization theory and in doing so err on the side of projecting a dim view of contemporary life, I find that world events in the thirteen-years following the publication of Beck et al’s theory offer some support for the concepts raised. The tensions raised by terrorism, global warming, meteorological catastrophes, etcetera, have not dissipated; heightened states of watchfulness have become a reality of modern living. There is a general sense of
uncertainty and instability that is felt world-wide and from a theoretical standpoint, there may be utility in considering Reflexive Modernization when analyzing the ways in which people choose to manage the world around them and especially, the ways in which people manage their social networks.

Finally, fear may be symptomatic of more pervasive feelings of loss of autonomy and control. The operationalization of fear is one of the most significant ways in which adults have leveraged power to control teens (danah boyd, PhD dissertation, 2008, p. 264). Cieslik & Pollock (2002) in their edited text called Young people in risk society consider the co-constitutive relationship of changing patterns of family formation, employment, identity creation and the organization of relationships on the lives of young adults (p. 9). The authors do present a silver lining: there is evidence that young adults are adapting to individualization by experimenting with their social identities and lifestyles and rapidly adopting the use of mediated communication technologies to counteract the anxieties and insecurities inherent in developing relationships in risk societies (Miles, 2002, p. 60).

1.3. Problem Statement and Research Questions

In this dissertation I explore whether or not there is evidence that the mobile phone fosters social cohesion within intimate relations while providing a more tenuous platform from which to nurture new relationships.

In this study I ask three research questions. The first and overarching research question is,

a) Is there evidence that mobile phones are used to maintain or extend personal networks?
This is supplemented by the two following research questions:

*b) What information practices are demonstrated when mobile phones are used by youth within the transitional first year?*

*c) To what extent are mobile phones used to support and facilitate personal network changes for first-year undergraduates?*

In framing the study, I argue that the lifestyles of young adults in urban cities such as downtown Toronto include events and activities that are in a constant state of flux (Cieslik & Pollock, 2002). In addition, like other researchers (e.g. Boase, 2007; Wellman & Haythornthwaite, 2002; Ito, Okabe & Matsuda, 2005; Ling & Yttri, 2002), I recognize the important functions that ICTs (like mobile phones) play in coordinating events and communicating within such dynamic environments.

With the aggressive adoption of mobile phones by young adults I believe that the mobile phone provides a means of managing communications within a state of *perpetual contact* and that as a socio-technical artefact it “sharply illuminates human behaviour” (Katz & Aakhus, 2002, p. 10). The specific behaviours that I focus on in this study involve mobile phone communication practices that support intimate and close relationships. I set out to collect evidence that proves or disproves a thesis that within youth communities, mobile phones foster social cohesion among established intimate ties but provide a more tenuous platform for negotiating new relationships. The latter may be due in part to the higher social presence of mobile phone communication which can lead to (i) a stronger association between mobile phone use and face-to-face encounters (Boase, Horrigan, Wellman & Rainie, 2006, p. 5) which may be intimidating at the early
stages of relationship initiation and (ii) anxieties and perceptions of risk in meeting strangers in the early stages of relationship development (Cieslik & Pollock, 2002, p. 2). These assertions will be tested by creating a set of hypotheses around mobile phone use in maintaining and extending social networks.

1.4. Research Approach

In this study I use Social Network Analysis to conduct empirical research on first-year undergraduate students between the ages of 17 and 34 at the University of Toronto and at Ryerson University. The study collected both quantitative and qualitative data from 173 participants using a multi-wave survey as a primary research instrument focusing on mobile phone use in personal relationships. The goal of the survey was to build a data set from which statistical analyses could be conducted and test hypotheses developed around mobile phone use and the maintenance and extension of intimate relationships and ties among acquaintances. The survey was administered twice over the period of an academic year, presenting opportunities to observe any changes in the respondent’s personal social networks from the first weeks in the academic year to the closing weeks of that same year.

To gather additional qualitative data for this case, I conducted semi-structured interviews with a subset of the survey respondents and construct sociograms or network diagrams towards the structural visualization of mobile phone facilitated personal social networks. This will offer a structural viewpoint that offers insights into how mobile phone-based communications overlay on personal social networks that include both users
and non-users of mobile phones with a focus on how these personal networks are maintained and extended.

1.4.1. Social Network Analysis

I selected Social Network Analysis for this study since it is an approach that focuses on the analysis of relationships and offers tools and concepts for research in this area.

According to Tindall & Wellman (2001), a social network approach can be defined as, “…[the] study of social structure and its effects. It conceives social structure as a social network, that is, a set of actors (nodes) and a set of relationships [ties] connecting pairs of these actors” (pp. 265-6).

This definition identifies two constitutive elements of social networks, namely actors, representing different entities (e.g. persons) and relationships or ties, representing flows of resources between actors (e.g. information, emotional support, finances). The principal focus of social network analysts is “to understand how social structures facilitate and constrain opportunities, behaviours and cognitions” (Tindall & Wellman, 2001, p. 256).

Social networks are pervasive in today’s social organizations and more so in academic institutions such as universities. People often obtain information about such things as campus social events, class assignments and course content through interpersonal contacts rather than from formal sources such as university websites. Networks provide emotional support in times of personal crisis (expressive support) as well as instrumental aid such as help with examination preparation. Identities are constituted within networks and in relation to others in networks; opinions are formed
and decisions are made in light of information and conformity pressures that flow through network linkages. Also, social networks are important channels through which information and ideas are diffused (Moody & White, 2003). Relationships among individuals in social networks give rise to important larger-scale social patterns. Thus, the study of networks contributes to the linking of micro and macro levels of analysis in sociology (Erickson, 1988 p. 96).

This study focuses on personal networks and explores the social structures of individual undergraduate students and those persons with whom they have intimate relationships or strong ties. Granovetter (1973 p. 1364) defined strong ties as characteristic of relationships where considerable time is spent in the relationship and there is a high degree of intensity, intimacy and reciprocal services. The definition of tie strength and variables associated with it is further discussed in Section 3.3.3 of this document. This study also explores the use of mobile phones in supporting less intimate but nonetheless close relationships and supporting the initial development of relationships with strangers. I attempt to discover whether or not, (a) the number of very close/intimate and close ties/acquaintances and the quantity of mobile phone calls/messages sent and received are directly proportional, (b) there are social practices associated with mobile phone uses such as evidence of a correlation between increased levels of social activity and increased quantities of mobile phone calls/messages, and (c) selected variables of mobile phone use and tie strength are related.

In summary, I have introduced the objectives of this study and provided background on some of the issues surrounding the ways that the mobile phone as a social technology is associated with personal social networks. The remainder of this document
encompasses some of the key thematic areas in the literature that influence claims and research design elements in this study. In keeping with the majority of social network analysis research, I present hypotheses to be tested using Social Network Analysis methods and conclude with a brief look at two options for data collection that include both the benefits and limitations.

1.5. Significance of the Study

In theoretical terms, this study makes a contribution to a growing body of knowledge on information practices supported by mobile phone adoption world-wide and in particular, focuses on Canadian society for which there is very little data. This study collects empirical data on a communications medium that is poised to undergo a major shift in sophistication in Canada. During the data-gathering period 2007-2008, the mobile phone was moving from a fairly simple voice and text communications device to a portable computing platform facilitated by the market launch of several devices like the Apple iPhone. Thus, although the data collected in this study offer novel insights into the use of mobile communications within the social networks of young people, the pace of technological development and integration of these technologies into daily life is such that this study is also analogous to a “before” photograph that may serve as a record and baseline for the near future considerations and impact of this medium.

Secondly, this research offers a contribution to the ongoing debate on the social consequences of new media, and in particular, the interaction between new media and social cohesion. By collecting both qualitative and quantitative data, I not only describe young people’s everyday experiences with using mobile phones to manage their social
networks but offer a way to analyse the role of mobile communication in the cohesiveness of social networks by considering the constitutive entanglement of the device in everyday sociality.

Thirdly, this is a study about the information practices of young people and contributes to a literature on children and youth’s experiences with information technologies. By focusing on a transitional period in the life-stage of young people, I also hope to shed light on some of the inherent dynamics and tensions that arise when using communication technologies to manage relationships.

Fourthly, mobile phone designers and telecommunications network operators will also benefit from the results of this study since they will provide empirical evidence of the social practices and uses of mobile phones which could inform the features and functionality design for the future.

Finally, the findings from this study could also assist policymakers in designing supplementary means to cope with current challenges to the establishment of mobile communication related policy in Canada.

1.6. Structure of the Dissertation

This dissertation is comprised of eight chapters. Chapter 1 outlines the motivation, objectives and significance of the study. Chapter 2 reviews conceptual and theoretical perspectives relevant to communication and sociality and youth and mediated communication including the mobile phone. The research questions and hypotheses tested in the study are introduced in relation to the literature review and are summarized at the end of the chapter. Chapter 3 proposes a conceptual framework that ties the research questions and hypotheses to key concepts. Chapter 4 describes the research
methods employed for data collection. It also provides insight into the recruitment process of the study. The purpose of Chapter 5 is to offer reflections on the data collection process for future researchers interested in the methodology, and this chapter also provides a profile of the participants as a useful introduction to the findings in the following chapter. Chapter 6 presents the findings or results of the study. The findings are introduced in relation to the research questions and hypotheses tested with brief discussions on the general implications of the findings. Chapter 7 discusses three key themes from findings organized in three essays. Chapter 8 briefly summarizes key findings and outlines the contributions of the study.
Chapter 2- Literature Review

Airmail, cassettes, postcards, telex
Drop me a line, be my grapevine
I’m always trying to reach you, can’t get through.
Our communication depends on me and you
Got to stay in touch even though we’re on the move
Keep your lines open, say what’s new.

*Lyrics from "Communication," artist Duran Duran (1985)*

The following is a review of the literature addressing the main research question: Is there evidence that mobile phones are used to maintain and extend social networks for first-year undergraduate students? This Literature Review is presented in four parts: Section 2.1 *Communication and youth sociality* examines existing research and theory on the relationship between communication and sociality as they pertain to children and young people; Section 2.2 *Role of communication technology in youth sociality* considers the rapid adoption of modern communication technologies by young people as part of identity expression and participation in social settings that are increasingly a mix of physical and virtual spaces; Section 2.3 *Reflexive modernization, fear, and social affordances* introduces two theoretical constructs — Modernization Theory (Reflexive Modernization) and Social Affordances Theory — each providing a complementary basis for rationalizing the influential roles that mobile phones play in young adult relationship management; Section 2.4 *Friendships, transitions and rituals of the mobile phone* explores the literature relevant to considering the challenges to maintaining friendships during the transition from high-school to university, and introduces the notion of ritualistic use of the mobile phone during this rite-of-passage.
In the literature review I introduce six hypotheses linked to the literature that are incorporated into the design of the study. This section concludes with a summary of those hypotheses in Section 2.5.

2.1. Communication and Youth Sociality

On an intuitive level, interpersonal communication and social relationships appear to be associated. We recognize that *keeping-in-touch* and *touching-base* are communicative interaction practices that support the development and maintenance of social relationships. These practices of “sociability” are of increasing significance as demands of individualized modern societies call on each person to demonstrate agency in the day-to-day enactment of relationships (Wellman, 2004; Carrasco et al, 2008). In this way, social relationships in the form of networks are chosen rather than ascribed and need to be “established, maintained, and constantly renewed by individuals” (Beck 1992, p. 97).

The people with whom we choose to have frequent exchanges are more likely to be the ones we get to know better, share common interests and over time become those with whom we develop a common history and friendship. Anthropological and linguistic research on interpersonal communication demonstrates a positive correlation between social bonding and regular verbal and non-verbal exchanges (Burton 1980; Crystal 1987; Malinowski 1943; Steible 1967). This is true among humans but is also seen in the social structures of other primates where comparisons of non-human species show correlations between better communication capabilities and increased sociability (McComb & Semple, 2005, pp. 381-385). In the animal kingdom, the evidence is particularly strong that
communication serves a positive role in maintaining social ties within grooming practices.

Grooming or social grooming as a form of interpersonal engagement is also evident in human communication practices. Since much of the early work on interpersonal communication focused on pre-literate societies (Goffman, 1967; Malinowski, 1943; Quirke, 1962; Turner, 1967), face-to-face interaction and voice communication predominate the literature as principal forms of social engagement. Malinowski (1943) is credited with coining the term phatic communication to describe the social value of communication in and of itself and unrelated to the information relayed. “Phatic” is derived from the Greek word phatos meaning spoken. By the term phatic communication, Malinowski referred to

…the use of spoken language in pure social intercourse; when the object of talk is not to achieve some aim but the exchange of words almost as an end in itself…fulfils a purpose to which the meaning of its words is almost completely irrelevant. Inquiries about health, comments on weather, affirmations about some supremely obvious state of things….” (Malinowski, 1943, p. 312)

Importantly, phatic communication serves the role of affirming and reaffirming social bonds (Musolf, 2003, p. 143). It is this function of communication that “serves humans much like grooming behaviour serves many animals” (Wardhaugh, 1993, p. 171), by bringing cohesion to relationships through the performance of communicative rituals. This use of communicative rituals in relationship management is a key theme that was explored in this study within the context of mobile phone use by young people.
Increasingly, scholars have extended the term phatic communication to non-verbal communication, identifying its role in text-based mediated communication as an equally important component of social exchanges. MacArthur (1992) and Crystal (1987) examined the salutations in written communication in letters and greeting cards. Pavlidou (1994) identified telephone conversations as a form of phatic communication and Musolf (2003) described email as capable of serving the same function. In this study, I anticipate that participant mobile phone voice and text based exchanges will serve phatic functions in the maintenance and development of the relationships of young people.

Turning the focus to young people, interpersonal communication plays a direct role in how individuals understand their social environment as early as within the first year of childhood. Although parent-child interactions are the basis for much of childhood and adolescent learning, it is peer-friendship that imparts lessons about the social world that are distinct from the hierarchical and power-imbalanced parent-child relationships (Haslett & Samter, 1997, p. 193). Friends offer an opportunity to learn about relationships based on negotiation and communicative mutuality and reciprocity which are foundational concepts for successful adult relationships (Rubin, 1980). In this way, friends can shape young person’s emotional and social development in ways inaccessible by parents.

In a chapter on child development and communication, Haslett & Samter (1997) analyze the social interactions of infants and adolescents. They find that even as early as two-years of age, children’s social interactions present all the hallmarks of adult encounters. Although they have some trouble finding precisely the right words, children signal interest in one another, make repeated efforts to gain each other’s attention,
demonstrate an understanding of how reciprocity functions in communication and are able to sustain a common focus (p. 198).

In their analysis, Haslett and Samter (1997) demonstrate a developmental progression in social-cognitive thought about interpersonal interaction of children at age four who consider friends as playmates to adolescents who view friends as confidants (p. 207). The researchers conclude that examining friendships is an ideal way to investigate the specialized interaction routines of young people in social situations. This focus on friendships is a key feature of this dissertation research.

A review of the literature on communication and social-life would not be complete without a brief look at the contentious views on the effect of gender on interpersonal communication, in other words, is John Gray (1992) correct to assert that “Men are from Mars, and women are from Venus”? There is a general societal sense that women talk more than men, and this perception persists into both popular and scholarly research on the subject. For example, an article by Hara Estroff Marano (2004) from Psychology Today quotes Rhode Island psychiatrist Scott Haltzman as saying, “The average woman uses 7,000 words a day and five tonnes of speech…the average man uses 2,000 words and three tonnes. Men are talk-impaired, relatively speaking.”

Similarly, Louann Brizendine, a neurobiologist clinician and author of the book *The female brain* (2006), claims that differences in male and female communication are biological in origin. In her book she asserts that women typically produce three times more words per day than men as a result of fundamental biological differences stemming from the eighth week of fetal life. She states,
A huge testosterone surge beginning in the eighth week will turn this unisex brain male by killing off some cells in the communication centers and growing more cells in the sex and aggression centers. If the testosterone surge doesn't happen, the female brain continues to grow unperturbed. The fetal girl's brain cells sprout more connections in the communications centers and areas that process emotion. How does this fetal fork in the road affect us? For one thing, because of her larger communication center, this girl will grow up to be more talkative than her brother. Men use about seven thousand words per day. Women use about twenty thousand. (Brizendine, 2006, p. 14)

Despite such claims, scholarly research on the subject demonstrates that communicative differences between men and women are either greatly overstated and/or do not take into account cultural factors and stereotyping. For example, in their paper “Gender differences in verbal ability: A meta-analysis,” Hyde & Linn (1988) reassess claims on gender differences and verbal ability by reviewing 165 studies that reported data on gender differences in verbal ability. The weighted mean effect size was +0.11, indicating a slight female superiority in performance. The difference is so small that the authors argue that gender differences in verbal ability no longer exist. Canary and Emmers-Sommer (1997) also challenge gender-communication claims by reviewing the presumption of differences within gender research from as far back as the early 1970’s. They find that many studies embedded stereotypes about men and women into the collection and analysis of data that led to such findings.
Deborah Tannen (1991), a sociolinguistics professor at Georgetown University, analyzed the communication styles of men and women and found that American men actually tend to talk more than women in public situations but that they often talk less at home. In her book *You just don’t understand: Women and men in conversation* (1991), Tannen points to systematic differences in childhood socialization of men and women as a source of the differences in communicative styles and finds that childhood development is most influenced by the social structure of peer interactions. Boys and girls tend to play with children of their own gender; their sex-separate groups have different organizational structures and interactive norms and this in turn forms the basis for communicative styles that persist to adulthood. She says,

For males, conversation is the way you negotiate your status in the group and keep people from pushing you around; you use talk to preserve your independence. Females, on the other hand, use conversation to negotiate closeness and intimacy; talk is the essence of intimacy, so being best friends means sitting and talking. (Tannen, 1991)

In my dissertation research, in addition to my analysis of the role that mobile phones play in personal networks, I consider whether or not the quantity, content and purpose of mobile phone exchanges between 1st year undergraduates as they transition, are related to gender. In the following section I review the literature on the role of communication technology on youth relationships, and I will return to the gender question raised here in the context of new media.
2.2. Role of Communication Technology in Youth Sociality

While much of the effort involved in forming, maintaining and even terminating relationships takes place in the offline spaces of school cafeterias, malls and homes, virtual places assembled by communication technologies increasingly provide fertile ground for youth sociality. Virtual places are constructed via instant messaging, text messaging, wikis, blogs, social networking sites (e.g. Facebook and MySpace), massively multiplayer online role-playing games and other social media like Twitter. They offer unstructured environments for “hanging out,” and the content of social life enacted virtually mirror that of the offline world: “Teens gather in networked publics to negotiate identity, gossip, support one another, flirt, joke and goof-off” (boyd, 2008, p. 170).

Young people do not generally differentiate between offline and virtual places in an overtly conscious way. Expressions such as, “See you later,” or references to conversations like, “He told me that…” could as easily refer to face-to-face encounters, as they would an instant message (IM) exchange or a turn in the game World of Warcraft. These places are just alternate spaces for young people to connect with their friends and peers; technology enabled interaction fits seamlessly into their everyday lives and complements other practices (Osgerby, 2004; Abbott 1998).

Young people have historically been associated with new technology. Whether this is because the young are more open and less encumbered with conventional ways of doing things (Caron & Caronia, 2007), because of their ability to repurpose artefacts to meet their needs such as Japanese girls and the pager (Ito & Okabe, 2006) or because of youthful linking of technological devices to fashion (Ling & Helmersen, 2000), the perception is the same: young people are associated with technology.
However, revisiting the history of radio, television and Internet, shows that young people are not often the originally targeted audience for these media. Marketers tend to segment target consumers with buying power in mind, and young people usually fall into less lucrative categories when compared to the income potential of, for example, affluent businessmen (Wedel & Kamakura, 1999, p. 77). Despite this, young people worldwide are the early adopters and active content contributors of social media. The range of communication arenas available to this generation of young people is unprecedented (Caron & Caronia 2007) and is supported in large part by the pervasiveness of mobile devices and the Internet.

In Canada, a robust broadband infrastructure has contributed to youth access by making the Internet increasingly accessible to the general population in urban centres (Kayahara & Wellman, 2005). According to Statistics Canada, 75% of Canadians were Internet users in 2004 with even higher rates of use (93%) among Canadians under 25 (Ekos, 2004). The Internet World Statistics Report updates these numbers indicating that in 2008, 84.3% of the Canadian population were users of the Internet.12 Holding population size constant, per capita Canadians lead the world in the use of the social networking site Facebook, with over 40% of Canadians using Facebook as of July 2008 (Mallick, 2008)13. Thus, young Canadian’s use of internet-based communication technologies may be contextualized within a broader frame of high internet and social media use within the general population.

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13 Article by Heather Mallick in the Guardian.co.uk, entitled “Hiding behind Facebook,” last retrieved on April 15th, 2009, 12:10 am.
Socializing using communication technology and socializing face-to-face results in an altered conceptualization of “community” especially relevant to young people. Relationships are created, maintained, terminated and recalled in both sets of places. Barry Wellman, a sociologist studying the implications of social media on personal networks in Canada found that the rapid emergence of computer-mediated communications means that relations in cyberspaces are combining with relations on the ground (Wellman, 2001, p. 228).

These different forms of interaction should be considered complementary and taken together they represent the channels selected by an individual for sociality. One such channel is the social networking site Facebook. In her research on American youth, danah boyd (2008) states that,

Social networking sites supported a wide range of everyday teen practices and much of what takes place in these environments parallels longstanding teen practices. At the same time, the mediated nature of these digital environments inflects everyday practices in new ways and widespread teen engagement with these sites has reshaped certain aspects of teen sociality (p. 2).

Boyd found that teen participation in social networking sites is driven by their desire to socialize with peers and such participation is rarely divorced from offline peer culture; teens craft digital self-expressions for known audiences and they socialize almost exclusively with people they know (2008, PhD dissertation, p. 3).
Traditionally, the community centre was a building in a central part of a town or
neighbourhood that offered a place for socializing. Today, community centers are
physical and virtual places with each individual at the centre. In a study of Internet use in
a residential neighbourhood in Toronto conducted in 2002-4, Wellman, Quan-Haase,
Boase, Chen, Hampton, Isla de Diaz & Miyata (2003) made an observation that we are
experiencing a social shift from densely-knit and tightly-bounded groups to sparsely-knit
and loosely-bounded networks (p. 4). Wellman et al (2003) suggest that individuals are
not left on their own but form social networks with the individual as the key point of
access, a concept he has termed Networked Individualism.

For the networked individual, “community” is not geo-specific but is defined as
networks of interpersonal ties that provide sociability, support, information, a sense of
belonging and social identity (Wellman, 2001, p. 228). Using this definition, community
for young people is their personal networks of family and friends, managed on and
offline using communication technologies.

These technologies are embedded in the everyday practices of youth sociality as
communicative resources particularly in the experimentation with identity. For young
people in the midst of the transition to adulthood, keeping in touch is part of a dynamic
process of constructing a social identity (Katz & Aakhus, 2002). Day-to-day experiences
of friendship within social groups require varying degrees of emotional, social, and even
cultural labour (Henderson, Taylor & Thomson, 2003). Danah boyd, a researcher of
youth sociality in the US, found that communication technologies are a primary channel
for youth experimentation with techniques of self-presentation. She states, “Through the
use of text, images and other media and design, teens create profiles that signal information about their identities” (boyd, 2008, p. 130).

When serious interest in researching the social consequences of Internet use took hold in the late 1990’s, a number of researchers argued that Internet use was leading to loneliness and community withdrawal and had deleterious effects on face-to-face social interaction (Kraut, Patterson, Lundmark, Kiesler, Mukhopadhyay, & Scherlis 1998; Putnam, 2000; Morahan-Martin & Schumacher, 2003; Moody, 2001). However, Wellman and Haythornthwaite’s (2002) edited collection provided evidence that rather than destroying community, the Internet adds to existing relationships with community members and in fact adds to other forms of communication, rather than replacing them. Further, in analyzing data from the Pew Internet & American Life Project, Boase (2007) found that Internet use is actually highest among people with larger social networks.

Miyata, Boase, Wellman & Ikeda (2005) studied the social characteristics and the social relationships of the users of Internet-connected webphones (i.e. mobile phones with Internet access) and personal computers. Using survey data from 1,320 adult respondents collected in 2002, they found that the Japanese are among the earliest users globally of webphones to communicate with social network members (p. 145). A central question in this study was whether or not people in Japan maintain different kinds of networks when they use webphones, personal computers, or both, than when using email alone. By examining data collected on the quantity of email exchanged and the extent of those exchanges with local and distant and weak and strong ties, they concluded that webphones, like other mobile phones, are especially important for maintaining strong ties — that is, close friends and family (p. 155). This finding directly connects to my study
which sets out to qualify this same notion of the importance of mobile phones in maintaining social bonds.

While there are cultural differences to consider between Japanese mobile phone users and those in my research sample in Canada, I argue that within youth communities mobile phones foster social cohesion among established ties in personal and intimate relationships by providing a means for users to tap into their social networks anywhere and anytime, thereby maintaining a virtual co-presence.

2.2.1. Young People and Mobile Phones

While mobile adoption over the past decade has soared in Asia, Europe and Africa, Canadians — like their American neighbours — have been slower to succumb to the call of the mobile. Canada's mobile phone penetration (or the number of mobile phone subscribers per 100 citizens) was 61.7% in 2007, trailing the United States (83.5%) and Mexico (62.5%).\textsuperscript{14} Due in large part to lower mobile phone subscribers relative to other developed countries, the International Telecommunication Union ranked Canada 19th out of 154 countries representing a drop of 10 places from ninth in 2002.

Although a well-developed landline infrastructure may have slowed mobile penetration in Canada, increasingly, Canadians are using mobile phones as a primary communication device. In 2006, Industry Canada reported that from 1997 to 2004 the number of Canadian households that had a mobile phone for personal use increased from 22% to 59%. Although mobile phone use continues to be most common among those

with higher income, this trend of increasing use of mobile phones was most pronounced among households in the lowest income quartile (McKeown, 2008).

Statistics Canada has not compiled data on mobile phones use among children, however they do indicate that mobile phone ownership has increased the most and is highest among young adults ages 18 to 34 (Statistics Canada 2007). Further, concomitant with the increased popularity of cell phones, a younger demographic of users has emerged, and mobile phones are in increasingly common use by children and youth, ages 10 to 19 years (Statistics Canada 2007).

Youth use of mobile phones is a good example of the reinterpretation and repurposing of a communication technology by young people. Originally the phone companies marketed to the rich, fashionable businessman. One of the first television advertisements from Centel in 1989 is available on YouTube and covers all of these images (complete with the business man leaping from his Jeep into his speedboat, mobile in hand). Today, although veteran users of mobile phones reflect corporate affluence, new users are young people (Rice & Katz, 2003). We can look to mature mobile phone markets such as Japan and China, where the heaviest users of the devices are in their 20’s or younger (Ikeda, 2005; Miyata et al., 2005) for the earliest evidence of youth using mobile phones for social purposes.

In 2005, Ottawa-based Media Awareness Network led a research project called “Young Canadians in a wired world II” and reported that 46% of Canadian youth in Grade 11 said they owned a mobile phone compared to 6% of children in Grade 4.\(^{15}\) Responses to the 2005/2006 Census at School by Statistics Canada from secondary

school age youth however, indicate that using a mobile phone is 4th in preferred ways of communicating with friends. The most common modes of communication by youth are Internet chatting (36%), in person (32%), landline telephone (about 18%), mobile phone (7%), text messaging (2%) and lastly, 2% via e-mail (McKeown, 2008). By the end of secondary school, the mobile phone is one of the first choices among communicative devices for young adults and is a fixture of their everyday lives (Caron & Caronia, 2007).

Everyday seeking, use and sharing of information are what Savolainen (2008) defines as information practices. These practices are habituated behaviours that involve information use in everyday contexts. Within the umbrella concept of information practice, information sharing is an aspect of particular interest to this study as the issues that arise are those of context, in which social networks are of primary importance. Studying information practices encompasses assessing human motivations and technological contributions to interactions, particularly when in the course of practice the human and the technological elements become integrated.

Silverstone and Haddon (1996) have termed the process whereby a technology becomes integrated into everyday life “domestication.” Domestication speaks to the pervasiveness of the mobile phone across a broad range of information practices that recur in the routine of people’s experiences around the world (Castells, 2007, p. 77). This ubiquitous nature of the mobile phone is particularly true for young people who appear to be on their phones all the time, much to the frustration of parents and teachers. Naomi Baron (2008) notes that among those people who are “on” modern communication technologies, an increasing number are “always on,” (p. 3). Part of the goal of this study is to explore the way the mobile phone has become domesticated in the lives of young
Canadians and identify the consequences of always being on for youth social relationships.

Wellman’s concept of *Networked Individualism* introduced earlier implies that because relationships and connections are to people and not to places, mobile phones allow us to “shift community ties from linking people-in-places to linking people at any place. It is I-alone that is reachable wherever I am: at a home, hotel, office, highway or shopping center - in other words, the person has become the portal” (Wellman *et al* 2003, p. 18).

If relationships are to people and not places, then accessibility to people regardless of their physical location is important in social networking, especially in the case of young adults who generally tend to lead less structured lifestyles and who are increasingly accessible most easily via a mobile phone. According to the technology research company *Yankee Group*, by the year 2004, 12-percent of North American adults aged 18 to 24 had abandoned landlines in favour of mobile phone-only access and another 28-percent planned to do so within the next five years. With regard to mobile phones and availability of persons, Wellman *et al* (2003) state, “Just as 24/7/365 Internet computing means the ready availability of people in specific places, the proliferation of mobile phones and wireless computing increasingly is coming to mean an even greater availability of people without regard to place” (p. 19).

This is supported by findings of Carrasco *et al* (2008) who state, “…individuals who take advantage of new media possess more social accessibility over greater spans of space and time” (p. 9). In contemporary society, accessibility of people to their social networks or *Social Accessibility* (Collins & Quan-Haase, 2009) is related to the ability of
each individual to negotiate the tensions of online and offline availability and private and public time but that greater social accessibility and always being on offers a huge advantage — the ability to manage expectations.

Managing availability and controlling accessibility take on new meanings when living with new media. Although mobile phones give young people a greater sense of autonomy and control over their own affairs (Skelton, 1989), especially as it relates to parental restrictions (boyd, 2008), using a mobile phone also requires the use of new strategies in the maintenance of social relationships and expectations. Baron (2008) reminds us that individuals have always had strategies for controlling their interaction with other people, including establishing zones of privacy. What has changed is the amount of control and the mechanisms affecting it. Managing access is only one of the mechanisms available (p. 33).

Social Accessibility and Control are themes in the literature that support an underlying premise that, for young adults, mobile phones are playing an important role in managing their social networks and suggest that there should be evidence that mobile phones are used to maintain and perhaps extend personal networks. A goal of this study is to identify the mechanisms that young people employ regarding mobile phones to manage their social networks.

Hyper-coordination

In researching the degree to which the mobile phone has been integrated into the lives of Norwegian youth, Ling & Yttri (2002) coined the term *Hyper-coordination* to mean the use the mobile phone in expressive ways to demonstrate and reinforce social
network membership. The focus of hyper-coordination is on expressive or emotional support and is differentiated from more instrumental uses of the mobile phone such as scheduling meeting places and times. Expressive use of the mobile phone can be experienced through short messages of the, “Are you ok?” text variety to longer and more sustained voice conversations, all perceived as gestures of social solidarity.

Researchers have recently begun examining the information content of mobile phone exchanges. Johnsen (2003) conducted research, again on Norwegian young people, and considers that sustained mobile interactions include idle chatting (i.e. “small talk”) as well as discussions of more intricate personal matters, to be charged with “expressive-symbolical content” (p. 164). He finds that both types of exchanges can have bonding properties strengthening the relationship of the parties. While on the surface “small talk” exchanges may appear to be insignificant, Johnsen (2003) considers them “digital gifts” and explains that this type of communication has “…a very important function apart from the instrumental exchange of information. It becomes an information carrier-without having content or function except to sustain the idea of a social fellowship” (p. 163).

In this case, mobile phone small talk shares properties with Phatic Communication discussed earlier. Ling & Yttri (2002) find that because the receiver is in the thoughts of the sender, “the messages serve to tie the group together through the development of a common history or narrative” (pp. 158-159).

In summary, Hyper-coordination provides one more way of recognizing that mobile phone use strengthens ties in social networks, and in this study I seek evidence that the information content is less important than the exchange itself in managing
personal social networks. I concur with Marshall McLuhan who said “The medium is the message.”

2.2.2. Social Networks and Managing Close Relationships

In this section I present a key theme that emerges from the literature on the use of mobile phones for communicating within close relationships: mobile phone use strengthens ties in social networks. In summary, supporting literature is based on ideas concerning social accessibility or how individuals connect to each other using new media and draws in the concept of Networked Individualism. Research into Hyper-coordination, which is the use of mobile phones for emotional support by young adults, further reinforces the theme. The third collection of interesting ideas associate social intimacy and the use of mobile phones in personal networks to produce a phenomena that Habuchi (2005) calls Telecocooning. And finally, a fourth research source considers the importance of choice in managing close relationships and draws on the concept of Social Selectivity. These ideas are in turn presented below.

2.2.2.1. Telecooconing

Thus far, the selected literature seems to support the premise that the mobile phone is increasingly important in accessing and being available to people in a social network, and that mobile phone exchanges contribute to experiences of solidarity or closeness in personal relationships (Habuchi, 2005; Ito, 2002; Katz, 2002; Ling, 2005; Matsuda, 2005;). Habuchi (2005) takes these ideas further in her study of both mainstream Japanese youth mobile culture and sub-cultural responses to social structures.
forming as a result of intensive mobile phone use. Of particular interest to this study is Habuchi’s analysis of intimacy and the role of mobile phones in fostering it.

Habuchi (2005) builds on earlier research that she conducted on Japanese university students that proved that the mobile phone is an effective tool for the maintenance of relationships in which an encounter has already taken place (p. 167). This, and her finding that mobile phones are more likely to foster social cohesion among established ties or very close ties than initiate relationships between persons who have never met before (i.e. strangers) has heavily influenced my study and thesis. From Habuchi’s work, there is evidence of the important facilitative role that mobile phones play in the maintenance of intimacy, where intimacy is characterised by personalized closeness, comfort, deep familiarity and affection. As discussed in earlier sections, very close friendships (or intimate relationships) are very important to the development of young adults. Given the high adoption of mobile phones by the same group it is not surprising that there is a relation between intimacy and mobile phones. The question is what is the relation?

In answering these questions, Habuchi (2005) claims that the use of mobile phones create telecoocons, or “…zone[s] of intimacy in which people can continuously maintain their relationships with others who they have already encountered without being restricted by geography and time” (p. 167). Drawing on Reflexive Modernization theory (outlined in a following section), Habuchi (2005) analyzed two interview studies and a Japanese national survey to consider the more over-arching influence of relational security and insecurity in relationship development. She concluded that mobile phones support “relational intimacy” among young adults and that these telecoocons are
characterized by shared symbolic structures and trust-based, inward focused social behaviours that occur within small, insular social groups with dense patterns of information exchange. In addition, Habuchi (2005) found that people who form telecocoon are highly attentive to their group of friends and particularly attentive to the retention of the group’s association (p. 181), likely in order to protect the stability offered by the group.

While this study was conducted in Japan, there is some evidence that mobile phones are used across other cultures to support communication between intimates (Boase 2007; Castells et al 2007; Fortunati 2001; Ling & Yttri 2002;). In other research, similar practices were observed and suggest that for young people, the combination of a private space at home and intimate talk with friends may mean that friends become more influential in their emotional development and well-being (Gillard et al, 1998). Notwithstanding elements of cultural specificity, telecocooning represents a social phenomenon tied to mobile phone use that may be observed in my study.

In summary, Habuchi’s research and elaboration of the telecocoon concept directly contributes to the theme that mobile phone use strengthens ties in social networks. Her work points to Reflexive Modernization theory to explain why increasingly intimate or close-tie youth relationships are forming telecocoons. I am similarly interested in analyzing data collected on mobile phone use among young adults (in Toronto) in search of evidence that core, close and intimate relationships are the ones most supported by mobile phone use.
2.2.2.2. Selective Sociality

To close this section on social networks and maintaining close relationships, I briefly outline the work of Misa Matsuda. Matsuda’s (2005) research in Japan adds to the theme that mobile phone use strengthens ties in social networks by examining the role of choice in developing relationships. With an overall interest in analyzing trends on the mobile phone’s effect on youth interpersonal relationships, Matsuda (2005) reports an increase in individual selectivity. In examining individual selectivity, or Selective Sociality, Matsuda (2005) concurs with Fortunati (2002) who points out that “… using the mobile phone is to be reachable not by everyone, but only by those with whom we want to communicate – intimate friends or selected others whom we want to contact” (p. 123). In some ways, by making these choices, individuals are countering the pervasive nature of mobile communication by consciously reducing the communicative overload brought about by mobile phones’ potential for delivering “perpetual contact.”

In the study, Matsuda (2005) and her research team asked respondents the question, “Who would and who would you not share your mobile phone number with?” Matsuda (2005) concludes that young adults in contemporary Japan consciously differentiate media use depending on the type of relationship and mainly use mobile phones for intimate relationships. Like Habuchi (2005), Matsuda (2005) surmised that among Japanese youth mobile phones facilitated an insular life with little attention to the public or the other (p. 139).

In summary, as I design the detailed study for this proposal, I consider how individual choice processes inform maintaining and extending relationships to better understand the information and social practices associated with mobile phone use.
2.3. Reflexive Modernization, Fear and Social Affordances

In this third part of the Literature Review, I briefly describe two theoretical constructs: Modernization Theory (Reflexive Modernization) and Social Affordances Theory — each providing a different basis for rationalizing the influential roles that mobile phones play in young adult relationship management. These two concepts offer macro-social perspectives to the ego-centred network analysis that follows in this study.

2.3.1. Theorizing Externalities in Managing Relationships

Having identified what may be considered some grounding elements in preparation for an analysis of how young adults manage social networks (i.e. hypercoordination, telecooconing and social selectivity), the following introduce two theoretical viewpoints that I consider to be directly relevant to understanding why people use mobile phones to manage social relationships in contemporary life. The first is the theory of Reflexive Modernization, which considers the impacts of social change on relationship development for individuals in contemporary urban societies. The second considers how the Social Affordances or characteristics of the mobile phone itself contribute to the management of personal relationships.

I consider these two theoretical viewpoints as externalities in this study in the sense that although they accompany the personal social networking processes of young adults, they represent broader external effects that often go unnoticed.
2.3.2. Young People in Risk Societies: Reflexive Modernization

According to Beck, Giddens & Lash (1994) Reflexive Modernization is a conceptualization of social change describing the end of the industrial society and the birth of a newer and “riskier modernity” (p. 6). This new society is characterized not only by indicators of collapse such as growing poverty and environmental crises but also by strong economic growth, rapid technification and high employment security or the “victories of capitalism” that produce a new social form (pp. 3-8).

Beck et al (1994) consider this phase of social change to be a major phenomenon. Of particular interest to this study are their projections of consequences of this new society on both the group and individual level. A key implication of Reflexive Modernity is the deep insecurity of entire societies that fuels extremist nationalism, religious fanaticism, ecological crises and wars (Beck et al 1994, p. 4) to name a few. This collective insecurity is manifested though “industrial society cultures suffering from exhaustion, break-up and disenchantment” (Beck et al 1994, p. 7). As a result of the destabilization of many constituents of the collective, such as villages, community groups and even the nuclear family — institutions through which people previously communally affected change — there are greater efforts placed on “individuals as individuals” to seize opportunities presented and avoid risks. This is termed individualization and in this new modernity people are required to find and invent new social relationships based on their individual needs and strive to develop certainties of their own accord.

Fuelled by what Barry Glassner, a Sociology Professor at the University of Southern California, calls a “culture of fear,” institutions with historical claims to public service such as the government, the media and the medical community, vigorously issue
communications on an increasing number of threats to personal safety. Glassner (2006) argues that as a result, “Our fears are disproportionate to the risks of everyday life....” Similarly, Marc Siegel, in his book *False alarm: The truth about the epidemic of fear*, discusses the ramifications of living in a time of pervasive fear, including increasing levels of paranoia.

Nevertheless there is a general sense of uncertainty and instability that is expressed symbolically in the United States though the Homeland Security Advisory colour coded System and evidenced literally by the number of books on the subject since 2006 (Altheide, 2006; Bourke, 2007; Gardner, 2008; Furedi, 2006; Siegel, 2006). From a theoretical standpoint, there may be utility in considering Reflexive Modernization when analyzing the ways in which people choose to manage the world around them and especially, the ways in which young people manage their social networks.

For young adults, the impact of Reflexive Modernization takes many forms. In their edited text called “Young people in risk society,” Cieslik & Pollock (2002) consider the co-constitutive relationship of changing patterns of family formation, employment, identity creation and the organization of relationships on the lives of young adults (p. 9). The authors do present a silver lining: there is evidence that young adults are adapting to individualization by experimenting with their social identities and lifestyles and rapidly adopting the use of mediated communication technologies to counteract the anxieties and insecurities inherent in developing relationships in risk societies (Miles, 2002, p. 60).

It is an interesting coincidence that Beck *et al* (1994) identify the end of the 1980’s as a time of transition into a “new modernity” since this is the same time-period that marked the rise of both the Internet (and especially email) and mobile phones as
generally accessible communication media. While there have been critiques to the conceptualization of social change presented by Beck et al (1994), (see Adams 2003; Shields, 2006), nonetheless Reflexive Modernization offers a perspective on the general social environment within which mobile phone practices are emerging.

For the purposes of this study, Reflexive Modernization theory may offer insights during data analysis on the use (or lack of use) of mobile phones in extending personal relationships. I find the concept of a risk society hinted in Tomika’s (2005) work describing anonymity and intimacy as axes through which Japanese youth categorize people that they meet, and then the small number of people who choose to use mobile phone text messaging as a means to communicate with intimate strangers (defined as persons with whom there has not been a face-to-face meeting but with whom there are significant communication exchanges). I also see the underpinnings of the risk society concept in Habuchi’s (2005) formulation of telecocooning, discussed earlier in this paper, where mobile phones are used to foster social cohesion among small, insular social groups with dense patterns of information exchange but not to initiate contact with strangers.

Based on this literature and the concept of telecocoons, I hypothesize that first-year undergraduates do not use the mobile phone to initiate relationships with new acquaintances or strangers.

Hypothesis (H): The mobile phone is not used to initiate relationships with new acquaintances or strangers.
2.3.3. **Social Affordances of the Mobile Phone**

Social affordance is a specialization of the term affordance, referring to the properties of an object or environment that permit social actions (Wellman, 2003). As a theoretical construct used in the analysis of personal social networks, social affordance considers how the design and technical characteristics of an object, such as a mobile phone, affects how individuals and their personal networks are provided with opportunities and constraints.

Building on the concept of social affordance articulated by Bradner, Kellogg and Erickson (1999), Wellman and his NetLab team (2003) defined the social affordances of the Internet during their analysis of how that medium influences networked individuals. They argued that, “...the Internet is not a one-dimensional technology. Rather, it merges several media into one medium. Nor is it static. A set of current and imminent changes creates possibilities, social affordances, for how the Internet can influence everyday life (Wellman et al 2003, p.7). Boase & Wellman (2006) articulated nine social affordances of the Internet, ranging from properties of asynchronicity to the absence of direct visual or audio feedback in communication exchanges.

In this study, I consider social affordances of the mobile phone to contribute significantly to the management of personal relationships. While in everyday practice users do not reflect on them, the opportunities and constraints of mobile phones affect the way we communicate with those closest to us and reach out to new people.

Fortunati (2002) describes *portability* as a basic characteristic of mobile phones that “…brings a certain difference that affects the use of the mobile phone to communicate” (p. 43). This social affordance of portability is also epitomized in the
Japanese word for mobile phone “keitai,” roughly translated as “something you carry with you” (Ito, 2005, p. 1). Ito (2005) further describes how this characteristic of the mobile phone affects our perception of the actual content of the communications supported by mobile phones as “…constant, light-weight and mundane presence in everyday life” (p. 1). Katz & Aakhus (2002) termed one effect of mobile phone portability as enabling “perpetual contact” since owning a mobile phone sets an expectation by others in a social network that an individual can be reached at all times (within reason). I will return to this idea of perpetual contact later in this proposal when examining the use of mobile phones by young adults.

Another social affordance of mobile phones is the limited number of characters that can be used in sending text messages or Short Messaging Service (SMS). In most SMS service offerings, there is a 160-character limit for a text message. In describing Italian mobile phone behaviour, Fortunati (2002) observes that this characteristic of SMS messaging has affected Italian communication patterns toward greater brevity that she calls “communicative asphyxia” and views this as a restriction on an individual’s personhood and expression that accompanies the use of mobile phones (p. 44).

The final mobile phone social affordance that I introduce at this time is its multi-modal capability. Since mobile phones can be used for voice, text, still-image and increasingly video, individuals have the ability to choose the level of richness desired for any given communication within a social network, and in this way the mobile phone acts as a device for the customized capture, composition, storage and exchange of the content of personal relationships.
I suggest that an examination of the social affordances of mobile phones contribute to the maintenance and development of social networks, and that an analysis of mobile phone social affordances is important in understanding the behaviours observed and recounted by participants of my study. I hypothesize that youth information practices regarding the mobile phone have shaped and been shaped by mobile phone social affordances.

H: Youth information practices regarding the mobile phone have shaped and been shaped by the social affordances of the technology.

2.4. Friendships, Transitions and Rituals of the Mobile Phone

This fourth and final part of the Literature Review forms the basis of a conceptual framework for this study by considering friendships, transitions and the role of interaction rituals. While these ideas are introduced here as part of the development of the hypotheses for the study, the conceptual framework receives a more thorough treatment in Chapter 3.

2.4.1. Importance of Kinship and Friendship

Personal social networks can be described as an individual’s affective network or people to whom individuals identify as being emotionally close (Carrasco, Hogan, Wellman & Miller, 2007). Particularly in the case of young people, personal networks normally include both friends and family. Friendships are considered achieved personal ties since they are relationships that people actively chose to develop, whereas family ties
are described as *ascribed* personal ties since they represent relationships for which people have lower levels of choice in participating.

Compared to other types of social ties, ascribed ties such as family relationships more often involve routine interactions and benefit less from technology-mediated exchanges since significant interaction could occur during everyday routine, especially for those in shared households (Boase & Wellman, 2006, pp 8-9). This is in contrast to achieved ties such as friendships which are more flexible because individuals have high amounts of choice on determining who is contacted and when that contact occurs (Boase 2007). Thus friendship ties, in general, are more fluid than ascribed ties and benefit from the use of ICTs to manage the contact. In addition, friendship ties have higher degrees of variability of contact than family ties and friendships often require more active tie maintenance.

For young adults undergoing the transition from high-school to university, the relative importance of family and friends comes into focus. Social support that was previously mainly derived from the family home undergoes a shift that involves emotional support also coming from friends and friendships developed over years of primary and secondary school and from childhood neighbourhoods.

The literature reflects what many of us have experienced: not all friends are treated equally. In the often cited work of McPherson, Smith-Lovin, & Cook (2001) called *Birds of a feather: homophily in social networks*, the authors demonstrate that in most personal networks or “ego-nets” there is usually a core group of like minded-people who represent a core of the network and others who could be described as acquaintances at the periphery. This notion of core versus periphery is useful for my study because in
network analysis terms I argue that mobile phones are more often used to maintain relationships in the core of ego-nets. I could then hypothesize that relative to use among core network members, the mobile phone is not used as frequently to maintain relationships with peripheral ties or friends who may be described as acquaintances or “close friends” but not “very close friends.”

Another factor to consider is the fluidity or instability of friendship relationships especially among young people. In a study of friendships and social networks in childhood and adolescence, Cairns, Leung, Buchanan & Cairns (1995) found that social relations do not depict static structures so much as they represent changing and adapting processes. The findings of their research indicated that “friendships and peer groups are dynamic in organization and identification and over time specific social relationships of persons may fade into the background or become thrust into the foreground depending upon the contemporary quality and contextual salience of the relationship” (Cairns et al 1995, p. 1330). While their study was conducted on a younger age group, this fluidity dynamic is also observed in young adults and although it can be argued that friendship ties of young adults show a lesser degree of fluidity in the core of the ego-net than do those of adolescents, research has shown that attachment and disengagement of relationships continue to be a feature throughout the life span of adults (Bartholomew & Horowitz, 1991, p. 226).

In summary, for this study, while I gather data on both friend and family ties since in some cases the two categories overlap, I am more interested in friendship ties since these relationships more often show a greater range of fluidity and variability of intensity than do family ties. Accordingly, I hypothesize that mobile phones are used by young
adults primarily to communicate with friends of any degree (i.e. intimate, or close), but that mobile phone use will be higher for maintaining ties with intimate ties relative to close ties. Hence, a hypothesis in my study is that mobile phones are especially important for communication within intimate relationships compared to more peripheral network members, for example, acquaintances.

H: Relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with more peripheral network members (e.g. acquaintances and strangers).

Apart from an inherent fluidity in friendship ties, another challenge to managing personal social relationships is the pace and information intensity of urban life itself (Castells, 2007; Goggin 2006; Katz 2002; Fortunati 2002). In her reflection on the impact of mobile phone use on stereotypical Italian communicative practices, Fortunati (2002) comments that the complexity of urban life necessitates mobile phone use (p. 46). One contributor to the increasing complexity in urban life is an ever present need for time-efficiency which is finding ways to get more done in the same time period. To this end, time spent on trains, at airport departure gates and other transitory places away from Internet or face-to-face network access like offices or schools is termed “dead time” — time that could be more efficiently utilized if a mobile communication device was available.

Temporal mobility (Kakihara & Sorensen 2001) considers what is happening to our conceptualization of how we can use time. It has been argued that before the introduction of the mobile phone, our communicative use of time was defined by the
location of an individual (Geser 2003, Fortunati, 2001). If you were at the dentist’s office, the expectation by others was that until the appointment came to an end, you were non-contactable. Barley (1988) terms this practice “monochronicity” — the structure of situations where people organize activities and plan for events by allocating specific slots of time to each event’s occurrence. In a monochronistic world, the regulation of communication between an individual and her social network is governed by physical disconnection. Fortunati (2001) holds that these times of physical disconnection, “these moments of pause, which were very precious, structured the network of relations inside a rhythm of presence/absence” (p. 518). By contrast, mobile phones and personal communication devices give us the power to multi-task. Kakihara & Sorensen (2001) consider this “efficiency” as a “…divergence from structural and interpretive attributes of the temporal order” and influenced by the work of Stephen Barley, termed it “polychronicity” (p. 34).

Thus, mobile phones have changed the way we conceive of and utilize time and offer users the ability to counteract the time compression of everyday life by using slivers of “dead time” to stay connected with their personal networks while on the move. In this study, while undergraduate students typically have the use of other ICTs such as email, I anticipate that this physically active group will demonstrate significant use of mobile phones to maintain existing close relationships and foster new relationships using the “dead time” between classes, social activities and during commutes.

Highly fluid friendship networks are “high maintenance,” requiring a significant amount of time to maintain ties. Two of the features that make mobile phones well-suited to managing networks that change frequently are their portability which allows for near
instantaneous response and their multi-modal capabilities offering a range of ways in which to respond while on the move. Accordingly, I predict that mobile phones are more likely to be used by young adults who have fluid friendship networks because the dynamic nature of these relationships can be matched by the ability to respond and communicate dynamically using a mobile phone. Fluidity can be measured by identifying changes in respondents’ answers when asked to name their six closest friends over the course of an academic year. Therefore, I hypothesize that in friendship networks there is a positive relation between mobile phone use and high degrees of change in network membership.

H: The greater the degrees of membership change in friendship networks, the more young people use mobile phones to access social support.

Further, by opting to study young adults as they enter an undergraduate university environment, I anticipate that some friendship relationships established before entering university will be put under strain since there may be more periods of prolonged physical separation. Other studies have drawn a positive relation between mobile phone use and face-to-face interaction (Ito, 2005; Ling & Yttri 2002; Boase & Wellman, 2006). With respect to coordinating face-to-face meetings (or “micro-coordination”), Ling & Yttri (2002) found that there are differences in social coordination practices between the demographic age-groups with the teenagers showing a particularly high incidence of the use of the mobile phone for this purpose in Finland.
I predict that in order to combat the geographical and psychological distance that develops in the first year at university, mobile phone communication increases with pre-university friends in order to mitigate feelings of loneliness.

H: The mobile phone is used to mitigate feelings of loneliness during periods of social network changes.

2.4.2. Transitions, Separation and Social Support

Loneliness during periods of change often arises with the literature on transitions. Psychologists consider the move from the childhood home to university to be a critical transition for first-year undergraduates (Paul & Brier, 2001; Giddan, 1988; Cutrona, 1982; Perlman & Pepleau, 1982). In fact, Giddan (1988) found that the first-year of university\(^\text{16}\) is the most difficult period of personal adjustment that a student faces (Giddan, 1998, p. 56). For many late adolescents, the first-year at university is the first time that they are living away from their parents, removed not only from the emotional support of their families but from the security provided by familiar family rituals and routines (Cutrona, 1982, p.292). However, personal adjustment challenges are experienced whether or not the start of university includes a physical move, so that the challenges of transition are predicated on factors beyond those of the household family relationships alone.

Friends prove to be a particularly significant source of social support during this

\(^{16}\) The term “college” is used in the United States (US) to describe an institution of tertiary education that is referred to as a “university” in Canada. In this dissertation the term “university” is used throughout, converting the term “college” as used by US references as necessary.
period. Paul and Brier (2001) coined the term “friendsickness” to describe pressing relational challenges for new university students that is induced from moving away from an established network of friends (p. 77). Friendships are particularly vulnerable during the high-school to university transition since it often represents a time where young people who have developed long-term friendships based on frequent face-to-face interaction and within close geographies choose and set off on different paths.

In addition, when compared to family ties, friendships are voluntary relationships that can prove more difficult to maintain and are less likely to persist over extended periods without active exchanges (Stensrud, 1986). Thus, friendships are a focal point as first-year students adjusting to university life engage in activities to keep significant relationships alive, or in other words, to keep strong ties strong.

William Bridges, a writer and consultant on the subject of transition, describes the first-year university transition as an event-associated psychological process that involves an “inner reorientation and self-redefinition to incorporate a life change” (Bridges, 2004, p. 15). It is a better understanding of how the mobile phone relates to this inner orientation that this study endeavors to explore.

While researchers have previously examined the social and academic challenges experienced by first-year students, the present study represents an emerging interest in considering the relationships of students as part of their support network. This extends the discourse to include the role that information and communication technologies, and in particular mobile phones, play in how the transition to university is experienced and managed.
2.4.3. Liminality and Rituals of the Mobile Phone

Liminality: Being in the Margin during Transformations

Between 1950 and 1954, Victor Turner conducted ethnographic and anthropological studies of the Ndembu tribe in Zambia. Turner concentrated his investigations on the role of symbols and rituals in what was, at the time, considered to be one of the world’s “simpler” societies in contrast to the more “civilized” societies of Europe and the West. Turner analyzed Ndembu societal processes within a structural framework; he believed that there were unobservable but relatively enduring patterns of behavior within the society that generated observable social phenomena (Jary & Jary, 1991). A structural view of society also reflects an ontology that is familiar to network analysts and given that network analysis is the methodological approach adopted in my study, a reflection on Turner’s findings seems appropriate.

Turner’s work offers two transferable ideas that fit well with the social phenomena that I observe in my own study of mobile phone use among undergraduates in Toronto, namely liminality and rituals. Liminality is derived from the latin root “limen,” meaning a threshold or margin, or a “place between two others.” Turner incorporates Arnold van Gennep’s ideas on liminality to describe the period in time in which a person in a given society undergoes socio-psychological change, for example puberty, marriage and even death (Turner, 1967, p. 94).

In studying the characteristics of transition among the Ndembu people, Turner notes that transitional periods are often accompanied by the performance of rites that are normally religious in nature. Turner posits that society’s secular definitions do not easily
allow for the existence of “transitional beings” or “liminal persona” because these individuals are neither the previous nor the latter, neither completely outside of the previous state nor fully into the next (Turner, 1967, pp. 93-95). Persons in the liminal phase are from a socio-psychological perspective in-between.

Van Gennep and Turner consider transitions (or passages) in three phases: separation, limen (or margin) and aggregation. Separation comprises symbolic behavior, signifying the detachment of the individual from an earlier fixed-point in the social structure (Turner, 1967, p. 94). Separation for my research participants is represented by leaving high school. This separation is marked by the rituals of a graduation ceremony, receipt of gifts from family members and social events among peers such as formal dances or proms. Aggregation, the third phase, marks the consummation of the passage and is characterized by the individual being in a “stable state, behaving in accordance with customary norms, and observing the clearly defined obligations of the next state” (Turner, 1967, p. 94). Among my research participants, aggregation is represented by what is deemed by parents, university counselors and professors, to be successful adjustment to university life, and is measured by academic performance, attitudes towards achievement and participation in extra-curricular events such as clubs and societies (Wallace, 1966; Pratt, Hunsberger, Pancer et al, 2000; Friedlander, Reid, Shupak et al, 2007).

What about the transition period between the separation and aggregation phases for the post-high schooler who is still newly undergraduate? Somewhere in-between, the individual undergoes a process that challenges her to hold on to existing relationships while simultaneously forging new ones as part of a rite of passage. Turner says, “I prefer
to regard transition as a process, a becoming, and in the case of rites de passage even a transformation… a transition has different cultural properties from those of a state (Turner, 1967, p. 94).

Rituals: Symbols of transformation

It is this liminal phase or process of becoming that I focus on in this study because while mobile phone use is pervasive among young people in Toronto (Caron & Coronia, 2007; Castells, Fernandez-Ardevol, Qui et al, 2007) it is during periods of relational stress, like starting university, that the role of the mobile phone may be more visible to users. Van Gennep and Turner both found the analysis of rituals during the liminal phase to be the key in understanding how people cope with transitions. Turner considered “life-crisis rituals” to refer to a class of rituals which mark the transition of one phase in the development of a person to another phase. Life crisis-rituals among the Ndembu included initiation ceremonies for boys marking the transition from boyhood to manhood thus, I examine the rituals enacted by my research participants during a life-crisis of sorts as they transition to undergraduate life and focus on the rituals involving the mobile phone since it is a communicative device extensively used during this period. Of particular relevance to my study on undergraduate transition and the mobile phone are Rich Ling’s findings on the matter of rituals.

Ling (2008) wrote extensively on small-scale rituals, that is two-person or dyad interactions and the mobile phone. He posits that the basic elements of a ritual are the mutual focus of a circle of participants and the engendering of a common mood (Ling, 2008, p.83). Drawing on the work of Emile Durkiem and Erving Goffman, Ling suggests
that mobile communication [and the mobile phone] allows for the execution of rituals that in turn may either result in increased social solidarity of the dyad or inhibit social cohesion with persons outside of the dyad (Ling, 2008, pp. 83-85). The core idea is that everyday rituals involving the mobile phone as a mediating device are different to previously considered ritual interaction since they include not only the participation of those directly involved in the interaction but also include the person(s) situated in the physical environment of one of the communicators. Thus, mobile communication includes the dyad and those co-present to a person actively participating in the dyad.

I hypothesise that mobile phone related information practices have become a taken-for-granted reality of everyday life for young people and may be considered as rituals that involve those in the interaction as well as those co-present.

H: Mobile information practices for young people have become ritualized.

2.5. Summary of Hypotheses and Research Questions

The following is a list of the six hypotheses constructed from the Literature Review. Each Research Question is followed by the related hypotheses that are tested by the findings.

RQ1: (Overarching question) Is there evidence that mobile phones are used to maintain and extend personal social networks?

H1. Relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with peripheral network members.
H2: The mobile phone is not used to initiate relationships with acquaintances and strangers.

H3: The mobile phone is used to mitigate feelings of loneliness during periods of social network changes.

RQ2: What information practices are demonstrated when mobile phones are used by youth within the transitional first-year at university?

H4: The mobile phone is used to construct order in the daily lives of first-year undergraduates by managing communication flows.

H5: Mobile information practices for young people have become ritualized.

RQ3: To what extent are mobile phones used to support and facilitate personal network changes for first-year undergraduates?

H6: The greater the degrees of membership change in friendship networks, the more young people use mobile phones to access social support.

In addition, the data will be analysed for insights into gender similarities and/or differences.
Chapter 3- Conceptual Framework

Text me, call me, I need you in my life yeah
All that, everyday I need you.

Lyrics from "Kiss me thru the Phone," artist Soulja Boy (2008)

3.1. Introduction

Based on the Literature Review, Youth Sociality, the Social Affordances of the Mobile Phone and Ritual Interaction were each identified as antecedents that contribute to the manner in which young people experience the transition from high-school to university. In this section, the conceptual framework for the study is presented providing an analytical lens through which both the relationships among these antecedents and the outcomes of the investigation are considered.

3.2. Problematics in Framing the Mobile Phone

Theorizing and conceptualizing information practices involving the mobile phone present unique challenges for scholars in information and new media studies. The challenges stem from a combination of factors including; (a) the rapid and ubiquitous adoption of the mobile phone across economic, generational and cultural divides therefore differentiating this technology from earlier communication technologies such as the landline telephone, pager, television and home computer; (b) the relative novelty of the technology and the transformations that it continues to undergo; (c) the fact that the use of mobile phones for socializing among consumers was an unintended consequence of the original design; and (d) that the mobile phone is considered by its owners to be a profoundly personal and social technology.
Of all the factors it is the personal and social element that hints at the ontological puzzle that the mobile phone presents. Modern western-scientific traditions took a non-technical versus technical dichotomy as a foundational premise (Grint & Woolgar, 1997; Suchman, 2007), and in so doing drew a boundary between the material-technical and the social-psychological. On one side of this divide are technological artefacts and on the other social entities — machines versus people. The epistemologies that supported this construct (or as others would suggest, the constructs that birthed the epistemologies) included technological determinism on one side and humanist perspectives on the other. Each approach struggled to reposition either technology or people in the centre of the analysis.

Although there are examples of older technologies that defy this classification, the advent of the computer provided an opportunity for alternative perspectives and groups to flourish. In the works of Vygotsky and later Latour and Woolgar, some scholars consider “meaning-making” as occurring within a particular social context. For scholars of this tradition, the social context itself becomes an essential unit of analysis from which technological and human interactions may be understood. Meyrowitz (1985) used the term “situationists” to refer to an associated group of scholars well-represented by Goffman, who posit that social practice is embedded in, and contingent on, particular social situations.
3.3. A Conceptual Framework for Analyzing the Mobile Phone and Youth Information Practice

The conceptual framework for this study is influenced by three theoretical perspectives: (1) Mizuko Ito and Daisuke Okabe’s *Technosocial Situations*, (2) Wanda Orlikowski’s *Constitutive Entanglement* and (3) Richard Ling’s *Mobile Communication Rituals*. Independently, these three lenses were applied to analyze social consequences of the mobile phone in previous studies. For this study, I synthesize them and draw on the relevant strengths of each to focus on specific elements of the research questions. The concept of technosocial situations aptly describes the **transitional settings** within which the participants, both human and technical, are immersed. Mobile Communication Rituals provide a mechanism to relate everyday youth information practices vis-à-vis the mobile phone with **social cohesion**, while constitutive entanglement provides a frame of reference for the **interaction processes** in which young people and their mobile phones are actively engaged.

There are common threads running through these three perspectives that make them good candidates for the conceptual framework, particularly because the framework endeavours to relate the antecedents Social affordance of the mobile phones, ritual interaction and youth and sociality.

*Relevance to the Socio-technical Nature of the Mobile Phone*

All three theoretical perspectives share an analytical commitment in considering the social and technical participants of a setting as reflexively co-constitutive. The
pervasiveness of the mobile phone and the way the technology is embedded on a personal level in the everyday lives of its users (especially young users), suggests a complex and interdependent relationship between the mobile phone and the people using it.

*Relevance to Interaction*

The three perspectives have also been applied to studies of how people incorporate technologies and technological artefacts into everyday practice, intellectually drawing from interaction theorists such as Durkeim, Goffman, Lave and Suchman. Everyday information practice as defined by Savolainen (2008) incorporates seeking, using and sharing of information. In this study, I explicitly enquire about the information practices demonstrated when mobile phones are used by youth in the transitional first-year at university (Research Question 2). Interpreting the data on information practices necessitates an understanding of the interactions among the members in participant’s social networks, interaction between the mobile phone and participants and interaction among the different media employed by participants as they experience transition.

*Relevance to Youth Sociality*

Conveniently, all three perspectives have also been applied to studies of young people: Ito and Okabe’s studies of Japanese students (2006), Orlikowski’s research on sales representatives and customers (2004) and Ling’s investigation of Scandinavian teens (2000). These scholars have all argued in a similar fashion that young people’s experience of technology sensitizes us to a different set of issues and influences on which we have traditionally tended to focus.
The remainder of this chapter provides more detail in how the conceptual framework is constructed and related to the research questions and hypotheses.

3.3.1. Technosocial Situations – Youth Sociality and Mobile Phone Affordances

According to Ito and Okabe (2005), a technosocial situation is a technology-mediated social order that is structured both by the interactants and by influences that are outside the boundaries of the interpersonal encounter (pp. 256-260). In this study the technosocial situation includes mobile phones, young people and their personal network of friends and family as interactants, while the context of transition can be considered an influence external to the interpersonal encounter, yet integral to the social setting.

In addition, technosocial situations require an examination of how mobile phones operate within particular social settings as well as an examination of the settings being constructed by mobile phones themselves. In this way, analyses of technosocial situations must include an examination of the actions of human participants and an examination of the actions of technologies. “Actions” of technologies does not suggest agency in the same manner as human agency but action in the sense that there is meaning-making and assignment of meaning that surrounds the technology itself. Katz and Aakhus (2002) coined the word “Apparatgeist,” suggesting that the physical reality of the mobile phone becomes interpreted in a spiritual light which then influences both the designs of the technology as well as the initial and subsequent significance accorded to it by users, non-users and anti-users (p. 305).
In this study the technosocial situation includes both the sociality of young people and the directives of the mobile phone. In Research Question 1 (RQ1), evidence that the mobile phone is used to maintain and extend personal networks of young people is investigated. Reading RQ1 through the lens of the study’s technosocial situation, I conjecture that especially during transitions, (a) the fluid nature of youth sociality necessitates adapting the role of the mobile phone in response to relationship changes and (b) the mobile phone creates a constant and ambient accessibility to young people’s established networks of social support.

From this (and support from the literature, see Chapter 2), I specifically hypothesize that (H1) relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with peripheral network members, (H2) the mobile phone is not used to initiate relationships with acquaintances and strangers and (H3) the mobile phone is used to mitigate feelings of loneliness during periods of social network changes.

Figure 3.1: Diagram Representing Youth Sociality and Mobile Phone Affordances as a Technosocial Situation.
3.3.2. Mobile Communication Rituals – Mobile Phone Affordances and Ritual Interaction

Richard Ling (2008) argues that mobile communication is different from other forms of interpersonal mediation as it makes each person instantly and personally addressable. The highly personal nature of the technology leads many researchers in the field to conduct ethnography-driven studies focusing on individuals as their unit of analysis. However, in his recent book on mobile communication and social cohesion, Ling challenges us to consider the broader implications for mobile mediated interaction. Using a combination of macro and micro-level concepts from Durkeim, Goffman and Collins, Ling suggests that ritualized mobile communication is a phenomenon that acts as a catalyst for the development of social cohesion.

Ling extends and applies the concept of ritual interaction to the mobile phone, finding evidence around the world that the mobile phone contributes to our sense of social cohesion especially with close friends and family or with a world more intimate. A key element to Ling’s argument is that an analysis of ritual interactions involving mobile communication provides insights into the challenges to and development of social cohesion. Ritual, in lay-terms, is often synonymized with those practices that seem mindlessly repetitive. Although I believe that there may be some relevant evidence of repetitive reflex in everyday interactions with the mobile phone, this is not the sense of ritual that Ling employs. Ling positions ritual vis-à-vis social cohesion as a type of catalyst that in the process of interpersonal interaction involves the dissolution of barriers to interaction in the context of the moment (Ling 2008, p. 51). Persons engaged in the
process of ritual interaction come to a mutual sense of the moment and establish a bond that can be built upon in future interactions.

The basic process of social cohesion is analytically similar to that of ritual interaction: people come together within the boundary of a context, become conscious of one another and importantly for Ling, they become mutually aware of each other’s engagement in the situation (Ling, 2008, p. 83). Thus, in the Goffmanian sense that every fleeting encounter is a little social order, within the process of interpersonal interactions, a shared reality is constructed by solidarity rituals including gestures and more explicit marks of respect.

Mobile phone communication takes interpersonal interaction to another level by continually presenting, and often delivering, the potential to transport physically absent persons into a context of co-presence. Analyzing how co-present and virtual persons ritualistically negotiate and re-establish cohesion and involve the mobile phone in that process is a unique component to researching mobile communication.

Since this study is about how first-year undergraduates “keep-it-together,” social cohesion at the interpersonal level is a fundamental precept; Ling’s concept that mobile communication rituals act as a catalyst for social cohesion is well suited for this analysis. A focus on identifying mobile communication rituals will offer a mechanism to investigate the information practices of young people undergoing a transition. This investigation will consider the social affordances of the mobile phone and the ways that these contribute to interaction rituals on an interpersonal level.
In Research Question 2 (RQ2), I inquire about the information practices\(^{17}\) demonstrated when mobile phones are used by young people during the transitional first-year at university. Regarding RQ2, from the perspective of mobile communication rituals, I conjecture that for young people, information practices based on affordances of the mobile phone provide the basis for ritual interaction. Further, I think that the everyday use of mobile phones in ritual interactions obscures the role of the mobile phone itself to the human participants.

From this (and support from the literature, see Chapter 2), I specifically hypothesize that (H4) youth information practices regarding the mobile phone have shaped and have been shaped by the social affordances of the technology and (H5) mobile information practices for young people have become ritualized.

Figure 3.2: Diagram Representing Mobile Phone Affordances and Ritual Interaction as Mobile Communication Rituals.

\(^{17}\) Information Practice is defined by Reijo Savolainen (2008) as everyday seeking, use and sharing of information. See Chapter 2 for more on Information Practice.
3.3.3. *Constitutive Entanglement: Ritual Interaction and Youth Sociality*

Along with scholars who posit that sociotechnical interactions are co-constituted, Wanda Orlikowski believes that neither humans nor technologies should be privileged in research analyses. However, Orlikowski takes a further step by focusing on the outcomes, or as she terms it, the *assemblages* that are generated from human-technological interactions considering them examples of “Constitutive Entanglement.” Orlikowski’s framing of constitutive entanglement can be differentiated from other science and technology studies concepts from the point of view that before, during and following the interaction process, there is no ontological separation of social objects (e.g. humans) and material objects (e.g. technologies) so that in the process of human-technology interactions, the two become further entangled and new sociomaterial associations arise (2007, pp. 1437-9).

If there is no ontological separation of humans and technologies, then the idea of reciprocal interaction — that is humans shaping technologies and reciprocally being shaped by technologies — no longer holds. Instead, constitutive entanglement is an ontological and epistemological perspective that is grounded in a less dichotomous way. Following from works of Suchman and Law, Orlikowski claims that in constitutional entanglement, “… the social and the material are considered to be inextricably related — there is no social that is not also material, and no material that is not also social” (2007, p. 1437).

Through relations of technologies such as our bodies, clothes and foods, communication devices and other artefacts, people are constituted and in turn
technologies are produced through social and information practices. In this view, the
distinction of humans and technologies is purely analytical since these entities
relationally enact each other in everyday practice.

While Orlikowski has applied the concept of constitutive entanglement in a number
of organizational settings, the analysis most influential to my study was her investigation
of the use of Blackberry mobile communication devices in a private equity firm in 2004.
From this study on communication practices, Orlikowski found that analyzing the
practices of the firm’s information professionals in conventional “media use” terms
would neglect important aspects of what they were experiencing. Orlikowski applied the
concept of constitutive entanglement to interpret the way in which users of the
Blackberry device had increased their rate of response to emails received on the device,
based on their reinterpretation of the social expectation on the speed at which responses
should be delivered. If the device allows the receiver to be immediately notified of an
incoming email, and the sender knows that the receiver has a Blackberry device, then
there is a perceived shift in the social expectation on response. Orlikowski found this
change in communication practice to be an example of how the social (expectations) and
the material (device notification) are constitutively entangled in everyday life to
recursively produce an effect. In this case she found that social practice was reconfigured
through engagement with the mobile technology.

Further, Orlikowski found that when expectations are enacted in everyday practice
they are reinforced and become generalized over time. Expectations also become
intrinsically bound up with the device shifting how people think and act with it (2007, p. 1442).

This study is about time and how time changes the networks of young people starting university. I am particularly interested in how the mobile phone is situated in this transition as mobile phone information practices become *ritualized* over time when the technology is used (or not used) for social support. Constitutive entanglement conceptually provides an important analytical perspective that works well with the concepts of technosocial situation and mobile communication rituals. By considering the data from this study on youth-mobile phone interaction as examples of socio-material assemblages, I can provide an understanding of how youth sociality and ritual interaction with the mobile phone are intrinsically bound.

In Research Question 3 (RQ3) I ask to what extent are mobile phones used to support and facilitate personal network changes for first-year undergraduates. Reading RQ3 through the lens of constitutive entanglement, I conjecture that mobile phones do more than support and facilitate changes, but that ritualized mobile phone practices are entangled with the dynamic social lives of young people. As the friendship networks of first-years change, I anticipate observing changes in the way the mobile phone is incorporated in young people’s search for social support.

From this (and support from the literature, see Chapter 2), I hypothesize that (H6) the greater the degree of changes in friendship networks, the more people use mobile phones to access social support.
3.4. Conclusion

This chapter described a conceptual framework for analyzing the mobile phone and youth information practice. The influence of scholars from science and technology studies and sociology was demonstrated, drawing links to key ideas presented in the Literature Review. Using the concepts (a) Technosocial Situations, (b) Mobile Communication Ritual and (c) Constitutive Entanglement, the research questions were further explicated and the hypotheses were situated within the framework.

The conceptual framework presented is synthesized and diagrammatically and represented as Figure 3.4 below:
This chapter outlined the conceptual framework for analyzing the roles that mobile phones play in supporting the relationships of young people as they transition through their first year at university, particularly with regard to youth information practices. The next chapter discusses the methodology of the study including research design, research setting and data collection process and methods.
Chapter 4 – Research Methodology

| I know where you're comin' from             |
| Call me on the line                         |
| Call me, call me any, anytime               |
| Call me my love                            |
| You can call me any day or night            |
| Call me.                                  |

*Lyrics from "Call Me," by Blondie (1980)*

4.1. Introduction

This study investigated the roles that mobile phones play in supporting the relationships of first-year undergraduates as these young people transition to and through their first year of university in Toronto, Canada. The goal of the research was to gather both qualitative data providing a detailed view of the participant’s information practices involving the mobile phone and quantitative data that would present an opportunity to conduct statistical analysis for behavioral pattern identification.

Although mobile phones are the primary focus of this research to explore the central research question, “Is there evidence that mobile phones are used to maintain and extend personal social networks?” where appropriate, data was gathered on the use of other social media including Facebook/MySpace, email, instant messaging, landline telephones and face-to-face interaction. This provided a view of how first-year undergraduates incorporated the use of mobile phones into a social communication environment that includes complementary and substitutive media for relationship management.
The association of youth personal relationships and social media is an area that has received attention from scholars interested in social networks and the Internet, but as a body of literature it is still gaining research momentum from those interested in mobile communications. Attempting a longitudinal study of young people has its challenges. The dynamic sociality of young people requires a research approach that (a) utilizes collection techniques reflective of and aligned to their current practices and (b) offers incentives for them to complete a longitudinal study.

This section describes the approach and methods used in my study of first-year undergraduates in Toronto, Canada. It starts by translating the study’s key elements into social network analysis language that will lead more easily to connecting the data and method to the approach. A review of the research design is provided, including descriptions of the research settings, data collection process and participant sample. This is followed by a discussion of the two potential sources for data sets that were considered and a rationale for why the collection of empirical data was selected. The section concludes with a brief consideration of the limitations and contributions of this study.

4.2. Ego-centered Networks

Network analysis is a methodological approach that directs the researcher to focus on patterns of interaction or relationships. These relationships may be among people (e.g. neighbours in a suburb), people and artefacts (e.g. innovators and patents) or solely on a network of artefacts (e.g. highways and streets). As an approach, network analysis is fundamentally based on the notion that interaction patterns provide important insights on the behaviour of people and objects. This relational data which focuses on the structure of
the interactions provides a context in which the individual attributes of the person or artefact may be better understood.

Network analysis studies are conducted on one of two levels, reflecting two basically different kinds of data: ego or personal network analysis and whole or complete network analysis. While there are methods that combine ego network data to derive whole network output, generally these two categories co-exist in the literature.

Personal networks are the focus in this study given that I am not concerned in researching the interactions within a fixed population — for example an Information Studies undergraduate class — but more interested with the role of mobile phones in the evolution of first-year undergraduate friendship networks. Also, in the case of ego-centered networks, the researcher is not interested in all of the relationships of every actor to every other actor but is focused on a focal actor, called an ego, and the set of actors who have ties to this ego, called alters. This is fairly typical of personal network structure research. According to Wasserman & Faust (1994), the data gathered is relational but limited since ties from each actor are measured only to some (usually only a few) alters. Ego-centered networks are often used in studies of social support. Since this study considers close-tie relationships and emotional support, the principal structures investigated are ego-centered networks.

Ego-centred network analysis can be done in the context of traditional surveys. Each participant is asked about the people they interact with (alters) and about the relationships among the alters. Participants are often selected by a random, volunteer-sample and represent a subset of a larger population. This means that relationships among humans or artefacts (called “nodes”) from other egos in the networks are unlikely to be interrelated,
and it is not necessary for the researcher to attempt to connect the individual ego networks. A benefit of random sampling in the analysis of ego networks is an allowance for the researcher to execute classical statistical analysis, facilitating the testing of hypotheses.

This is contrasted with whole network analysis where the researcher aims to map the relationships among a closed set of participants, for example the workers in a corporate department. Techniques such as subgroup analysis, equivalence and measures like degree centrality require data from complete networks.

4.3. Boundary Specification and Sampling

Prior to gathering network data, one of the early concerns for researchers conducting social network analysis studies is identifying the population to be studied. Even in the more open network populations of ego-centred networks, questions and decisions on what the population should be, who is included and excluded as well as sample size, should be considered issues of boundary specification and sampling. In this section, I describe these issues by considering the unit of observation, population and sampling.

4.3.1. Unit of analysis

The participant group or actor set for this study is comprised of young adults in Toronto, Canada who are mobile phone users and who are enrolled in the first year of a full or part-time undergraduate program at the downtown campuses of the University of Toronto or Ryerson University. As Canada’s most populous and diverse city, Toronto was selected as the research location for the study as the data will offer insights that can
be used in comparison with data already collected for large urban cities around the world. In addition, patterns identified for Toronto provide a unique contribution to Canadian scholarship since this is a first-of-its-kind study for Canada. Furthermore, this research supplements existing research findings and data sets on the use of new media in social networks in suburban and rural Canada (Wellman, 1979, 2004, 2006; Hampton, 2002, 2003; Middleton, 2002; Caron & Caronia, 2007). Since mobile phone use was not a principal focus of these studies, data collected in this study offers comparative value for future studies.

Given that I am located at the St. George campus, accessibility to the research subjects and opportunities for observation of mobile phone use within the general environment were also readily available.

By focusing on mobile phone information practices, I chose to limit the study to existing mobile phone users. Within the actor set there is a range of experience that participants had with mobile phones from less than 6-months to more than 18-months. Thus, while the comparative aspect of looking at users and non-users is not undertaken in this study, I have compared the practices of novice versus veteran users.

Statistics from the Canadian Wireless Telecommunications Association (CWTA) in 2006 indicated that the penetration of mobile phone subscription in Toronto was about 70%, with the highest subscription rates among 18 to 34 year olds (74%) and among university graduates (73%). From this data, I anticipated that the target population of undergraduate students at the University of Toronto and Ryerson University would include the most prolific users of mobile phones in Toronto. From the results of the

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18 Source: CWTA President and CEO Peter Barnes talking about Decima Research study in 2006 on Canadian wireless penetration, see http://www.cellular-news.com/story/17423.php, last viewed on April 22, 2007 at 1:00 pm.
surveys, interviews, and from observation, this assumption proved to be correct. Within the personal networks of participants there were very few non-users of the mobile phone. Since the proportion of non-users included in the networks of the sample population was insignificant, I conclude that non-users have not significantly impacted the study results.

Finally, I selected the age-range for young adult participants in the study at 17-34 years.\textsuperscript{19} There is no standard international definition of “young adult” or “youth” as these are socially constructed terms to represent the stage in human development between childhood and adulthood. For example, in Australia young adults are considered those between 15-25 years old; in Britain, 14-19 years old; Jamaica, 14-29 years old; and the United Nations, 16-25 years old.\textsuperscript{20} Both the CWTA and StatsCan regularly use 18-34 years old as the range capturing this group, and PEW Internet Research uses 18-25 years old. Therefore, by electing to use 17-34 years old, I allow for ease of comparison with these research groups.

\textbf{4.3.2. Population and Sampling}

In network analysis terms I specified the network boundary as an analytical demarcation of who could participate in the study and who could not based on a nominalist approach. In a nominalist approach, the boundary is based on the line of inquiry for this study as opposed to a more physical boundary such as geography. There is a single actor set — first-year undergraduates — who are the one entity on which structural variables were set and measured. This is consistent with other one-mode

\textsuperscript{19} To meet ethics guidelines on researching minors, participants may be 17 at the time of survey response but must turn 18 before the end of the study.
\textsuperscript{20} Source: National Youth Council, Singapore at \url{http://www.nyc.gov.sg/research/youthdefinition.asp}, last viewed on May 27\textsuperscript{th} 2009.
network studies, such as those examining friendships among residents in a specific
neighbourhood.

Sampling is important when it is not possible to take measurements on all of the
actors in the defined actor set. In a perfect research world, gathering data from the full
population increases the validity of the data, promoting generalization, however, practical
and theoretical constraints can make this difficult. In the case of this study, it was
unrealistic to expect all first-year undergraduates at two universities to voluntarily take
part in a research project. Also, time and costs to manage such a large population made
sampling necessary.

According to Hogan, Carrasco & Wellman (2007), most researchers conducting
personal network studies gather their data by surveying a random sample of a population.
Increasing the diversity of the sample increases the validity and potential to make
inferences about the wider population of actors from the sample. Also, when dealing with
the set of alters connected to an ego in a personal network, the respondent is often the
only informant on this network (Hogan et al 2007). In order to manage the recall of the
respondent during data collection, name generators, visualization techniques and
secondary documentary sources were incorporated to improve reliability.

4.4. Data Collection Principles

Most of the methods commonly used in social science research such as surveys,
ethnographic interviews, semi-structured interviews and observation and documentary
analysis are used to collect relationship data using a social network analysis approach. It
is the technique, structure and presentation of the questions that are tailored to network analysis approaches.

I was interested in gathering both overall information practice data and detailed relationship information on participants’ networks so a mixed quantitative and qualitative method was employed. The study comprised of a multi-wave online survey and semi-structured interviews as core research instruments. The survey was administered twice over the period of an academic year to the same actor set; the first wave was issued in November 2007 (n=173) and the second in March (n=153) of the following year. This longitudinal design presented an opportunity to collect baseline data for a longitudinal view of the participant’s personal social networks from the first weeks in the academic year to the closing weeks of the freshman year. The longitudinal design allowed me to analyze the changes in their personal networks and observe the ways mobile phones were integrated in relationship management activities.

In order to gather additional qualitative detail for this inquiry, I conducted semi-structured interviews with a subset of the survey respondents (n=20) and constructed sociograms, or personal network diagrams, for the structural visualization of mobile phone facilitated personal social networks with each interviewee during the interview. I provided incentives for the same group of participants from November and March to complete both surveys and a separate reward system for interviewees. I also encouraged participants to bring their mobile phone bills with them to the interview to aid recall of details on usage. Participants also used their mobile phone logs of the devices during surveys and interviews to trigger memory on communication with network members.
Methodologically, the use of mobile phone bills and phone logs supplemented participant recall and improved the study’s internal validity by providing additional sources of data verification.

The hypotheses of this study can be considered in three groupings: the first group of hypotheses (H1, H2, and H3) targeted variables associated with maintaining and extending ties (Research Question #1); the second group (H4 and H5), tested the information practices that accompany mobile phone use in the social networks of young adults; and the third category (H6), considered the conditions under which egos are more likely to use mobile phones to connect to others in their friendship networks for social support. The surveys proved critical in answering the first group of hypotheses, the interview provided much of the data to test the second group of hypotheses, and mini-surveys administered during the interviews to gather data on the alters depicted in the sociograms were instrumental to testing hypothesis 6.

The design of the online survey and interview schedule profited from the efforts of previous researchers including Wallace (1966), Fischer (1982), Ito (2005) and the Wellman-led Connected Lives team (2005).

Walter Wallace (1966) conducted a study of how undergraduate students in a liberal arts college in the Unites States become assimilated into the local “campus culture” regarding grade achievement and aspirations for graduate study. He used social network analysis to consider the influence of interpersonal relationships on newcomer socialization. In the study, he gathered longitudinal data by issuing a survey in three waves: September, November and April. This allowed Wallace (1966) to compare attitudinal changes in the undergraduates over time.
Drawing from the post-research analysis from Wallace (1966) that September proved too early in the collection of data from the participant’s point of view, for this study, the first wave of data collection took place in November. This allowed the volatility of “Frosh Week” to subside and was well ahead of first semester examinations. This study actually received strong support from first-year undergraduates in both universities; over 75% of participants completed the survey within 24-hours of receiving the email link to the online survey.

In the study design I proposed to invite 200 volunteer-participants to register via an email to a dedicated account expressing interest in the study. The sample size in personal network studies varies widely. Wallace (1966) was able to survey 327 students using “paper and pencil.” Similarly, in the Connected Lives survey, 350 persons were surveyed. However, in the Pew Social Ties survey, whose data was used by other researchers including Boase (2006), 2,200 people were surveyed by telephone. While the decision to survey 200 students is selected mainly for manageability purposes, it made an allowance for some participant attrition over the data collection period. I anticipated that 200 registered participants would result to a response rate of about 65%. For the second wave, I anticipated that 66% of those who had completed the first-wave would complete the second (n=130) and these percentages were consistent with other similar studies. In addition, I expected to interview 25% of the respondents, which is consistent with the Connected Lives study. I considered this manageable from a time and expense perspective, since the respondents were to be compensated for submitting completed questionnaires and participating in interviews.
Two-hundred and ten (210) students registered to participate in the study (recruitment details follow in the next subsection). Of those, 205 proved to meet the age and first-year participation requirements. From the 205 registered participants, 173 completed the first-wave representing an 86.5% response rate, while the response rate for completing the second wave was 88% of the first wave participants — far exceeding my expectations. According to Ann Ray of the Query Group, which conducts online surveys, a typical response rate for members of a group such as university students is between 5-40%. Therefore, the response rates from this study were above average.

Semi-structured interviews were used to elicit additional details based on the hypotheses. In particular, a name generator was used during the interviews to guide the participants in self-generating their sociograms. Extensive work using name generators to collect network data began in the late 1960s. Early work includes Barry Wellman’s first East York study (Wellman, 1979) and Fischer’s northern California study (1982). These studies show how personal networks were multiplex, varied, geographically dispersed and sparsely knit (Hogan et al 2007).

Hogan et al (2007) documented the method used in the Connected Lives study that I replicated in my study and they also developed an extension of the name generator method for real-time visualization of the network structure during data collection. Using a name generator, the interviewer asks egos to name alters with whom they have a specific connection. After enumerating a set of alters, the ego describes the attributes of these alters and reports on both ego-alter connections and connections between alters (Hogan et al 2007).
Photographs of the participant’s mobile phones were also taken and provided rich qualitative data that has been instructive to other mobile phone studies in the past (Kopomaa, 2000; Ling, 2004, Katz & Sugiyama 2002, Fortunati, 2002). The photographs captured participants’ personalization of the devices, providing a visual representative by proxy of each participant.

As stated earlier, a key documentary source of data in mobile phone studies is the detailed billing record. For example, Palen et al (2001) used respondent’s mobile phone bills to gain additional insight into calling patterns and detailed accounts of incoming and outgoing calls, data that is a rich source for visualizing ego-alter relationships. I requested that the 20 participants interviewed bring their detailed mobile phone billing records from September 2007-July 2008 to the interview and over half of them did so. This assisted some participants in recall and assisted my ability to prompt responses based on suggestions of relationships from the billing records. Due to ethical considerations on the sensitive information recorded on the bills, participants retained their bills and no copy was made for the study.

4.5. Recruitment

The recruitment experiences from this study provided me with valuable insights in how not to attempt recruitment of young adults on university campuses. Initially, I contacted department administrators by email requesting a meeting to introduce the study and gain their support to include study information in first-year information packages mailed by the departments to the incoming students. Of the 15 department administrators emailed, only one responded in July 2007, and by the time we met late in July
information packages were already mailed to first-years students. I was allowed to post small notices on the bulletin board in that department.

I also emailed contact people for all university clubs, associations, residences, varsity teams and religious organizations on both campuses. This proved marginally more successful as eight of the 24 groups emailed responded for further information and six agreed to forward a message regarding the study registration to their members (all members, not just first year students). There is no data on how many registered participants were obtained via this approach, but I suspect not many based on the responses of the interviewees.

I also stood on busy corners of both campuses at class ending times for five days in October with colour copies of flyers advertising the study. A one-in-ten chance to win an Apple iPhone was a key incentive so a photo of the iPhone was prominently displayed on the flyers to attract attention. The iPhone should have been a strong incentive, since at that time the iPhone had not yet launched in Canada and the anticipation was mounting based on reports of iPhones already launched in the US and Europe. I was rejected by all students at the University of Toronto campus. I even left flyers lying on the cafeteria tables at Sidney Smith Hall (the largest facility for undergraduate instruction in the Faculty of Arts and Science). I observed a few people looking at the flyers with interest but only if they were alone. In groups, one or two students often commented that they would buy their own iPhone when it launched. At Ryerson University, the students politely took the flyers, a few of which I noted in nearby garbage cans later in the day.

Finally, I emailed 15 lecturers and professors of the largest undergraduate introductory courses across a broad range of disciplines at both universities including the
101 courses for Biology, Engineering, Philosophy, Sociology, Management, Information Technology, English, Music, History, Computer Science and Linguistics. All 15 lecturers and professors emailed me back, several had questions verifying specific elements of the research design (for example, would a corporation profit from the student data), and all 15 gave me a 5-minute slot at the start of their classes to pitch the study to the students present on a specific day. I rehearsed and enthusiastically faced bored looking undergraduates and requested that they send an email to the study’s email address to register for the study. Approximately 400 students were in attendance across the different classes of which 210 emailed to register for the study.

4.6. Variables

4.6.1. Structural variables

According to Wasserman & Faust (1994) there are two types of variables that can be included in a network data set: structural and compositional (p. 29). Structural variables are concerned with the measurement of ties between pairs of entities. For example, structural variables could measure the relationship between people, that is, friendship ties. Compositional variables measure attributes of actors — for example, age, ethnicity, weight, etcetera. In this study, I was interested in exploring the very close or intimate and close relationships between egos and alters from the perspective of mobile phone use. Demographic and ethnicity data also provided rich data from which I can do future research. As such, I collected a combination of structural and compositional variables in this study.

21 My faculty (Information) did not at the time have an undergraduate program.
4.6.2. Hypotheses and variables

The following table (Table 4.0) summarizes the variables that I designed into the survey and interviews and shows how the hypotheses were associated with a sample of the variables.

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<th>Hypothesis</th>
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Table 4.0 Showing the Research Hypotheses in Relation to a Sample of the Variables used to Test the Hypotheses.
4.6.3. Defining tie strength

In this study, in order to collect data on very close (or intimate) and close relationships (or acquaintances), it is important that tie strength was measured. Granovetter (1973) defined tie strength in terms of two indicators: (a) time spent in a relationship and (b) depth of the relationship. However, Granovetter’s definition was provisional and did not offer a means of empirically testing whether the indicators selected were the best ones. Marsden & Campbell (1984) conducted research to empirically test the most reliable measures of tie strength. To Granovetter’s two indicators they replaced depth with (b) intensity and added two additional indicators used in other studies: (c) intimacy and (d) reciprocal services (Wellman 1982). Marsden & Campbell (1984) concluded that of the four, the most accurate measure of tie strength comes from measuring closeness or intimacy as indicated by the respondent. By asking respondents to name the persons that they consider themselves to be “very close to” — where an operational definition of “very close to” was provided — the most reliable measure of tie strength is obtained.

This method was used in the Connected Lives study (2005) conducted on a residential town in north Toronto. In that study, the researchers were able to construct sociograms from asking respondents to differentiate and provide names for relationships considered (1) Very Close — “People with whom you discuss important matters with, regularly keep in touch with or are there for you when you need help,” and (2) Somewhat Close — “People who are more than casual acquaintances but not very close,” Hogan et al (2007). By highlighting the distinction between the “Somewhat Close” alters and “Very Close” alters, they were able to consider the core-periphery structural elements in
personal networks. Core-periphery network structures help visualize the ties that are most supportive, valuable or core to an ego’s personal network relative to other relationships in the ego’s network that are less core or peripheral.

Since a key part of my thesis considered mobile phone use in the maintenance of strong/intimate/very close ties, I asked respondents in the online surveys and interviews to differentiate their relationships into “Very Close,” “Somewhat Close,” “Acquaintance” and “Stranger” categories. I provided the following definitions to guide their understanding of where to place their network members:

- "Very Close" friends are people with whom you discuss emotional/family problems, share innermost thoughts and affections, and/or people who you believe will be there for you when you need help.
- "Somewhat Close" friends are people with whom your relationship is not very close but people with whom you are nevertheless quite familiar, more so than with acquaintances.
- "Acquaintances" are persons whom one can discuss a single topic with in detail but who are not personally close to you.
- "Strangers" are persons with whom there is no previous relationship including previous face-to-face contact.

4.7. Options for data collection in this type of study

In the research proposal for this study I discussed two options for data collection: (a) developing a new data-set or (b) using an existing data-set from another study. I opted to gather my own empirical data and the rationale for this choice follows below.
4.7.1. Developing a new data-set

I elected to gather a new data-set for this study for a number of key reasons: (i) I maintain control of the research design and objectives and developed the instruments in accordance with the research questions that I developed; (ii) the data in itself makes a contribution to Canadian scholarship since there is no comparable data-set currently available; (iii) I own the data gathered from an intellectual property perspective and could use the data in future research; (iv) I gain valuable research experience in conducting data collection; and (v) it allowed me to make changes to the instrument design organically before each interaction with participants, without needing to get consent from a second party.

However, the “do-it-myself” method created limitations for consideration.

4.7.2. Limitations

a. Accuracy - In general, data collected for social network analysis share some limitations with data collected in other social science research since some of the same methodological instruments are used, for example surveys and interviews. According to Wasserman & Faust (1994), data accuracy and validity are two matters that require researcher caution (p. 56). Accuracy can be a concern since sociometric data often depends on the participant reporting interactions with others and involves free or supported recall by respondents about actions and behaviours that have happened in the past. So-called informant accuracy can be problematic to studies of this kind. Observations, use of lists and diaries are used by some researchers to lessen the burden on respondents to be accurate post-facto and provide a means of mitigating large variances in data accuracy. I used
secondary documents including mobile phone bills and mobile phone logs to
achieve this goal.

b. Validity - Validity is a measure of the data’s relevance to the question under
exploration. According to Wasserman & Faust (1994) the researcher should strive
to ensure that a concept is valid to the extent that it actually measures what it is
intended to measure (p. 57). In designing hypotheses and variables, I was wary of
building into them my own biases or misconceptions about youth relationships.
To strengthen the validity of the survey, I conducted a pre-test on a group of
students not included in the study (not all first-year undergraduates) and identified
improvements to the collection instruments. I also took a group of non-
participating first-year undergraduates to lunch and conducted a focus group to
define the relationship categories and test the language used in the study
instruments. This proved very valuable in honing the precision of the instruments
and also provided insights into practices that I had not initially thought to test.

c. Generalizability – The sample size of 173 respondents is neither very small nor
very large. Smaller sample sizes reduce the ability of findings to be applicable to
a wider group since the effects indicated in the data may be unique to the sample
selected. In addition, the findings may be limited due to the use of a specific case
of first-year undergraduate students. As a case in point, Ito (2005) indicated that
one limitation of her study was that the research subjects did not represent a
comprehensive sampling of the socio-economic spread within the Japanese youth
category. In her case, the research subjects were mainly selected from the Keio
University campus — one of the top universities in Japan — where students tend
to live away from the parental home, an atypical situation. A similar situation may occur by selecting University of Toronto students since it is one of the largest universities in Ontario, Canada and is in one of the more urban communities in Canada. The goal of adding Ryerson University participants was to mitigate this potential issue. In Ito’s case, this issue did not take away from the research findings and in fact represents an area for future research by others replicating the study in different places. It is my hope that my work will do the same.

d. Longer longitudinal data - Due to the constraints of time, data collection was completed within one academic year. This limits the ability to test additional hypotheses based on, for example, network size changes over the second and third year for comparison.

e. Online surveys – Using an online survey offered the advantages of easy distribution to an actor set with known access to email, fast issue and response, a means to track responses and issue reminders for tardy responses. Collating the data was fast and the online survey allowed participants to complete the surveys in any location of their choosing. However, online surveys have some limitations and in this case I encountered difficulties with utoronto.ca email spam filters that did not allow me to send the same content to more than 20 email recipients. I had to develop several email accounts and separate participants into groups of twenty, documenting which email address was linked to which participant for future correspondence. Also, junk mail settings on participant email accounts would periodically guide my messages away from target accounts. I had to set a timeframe within which participants would alert me if they had not received the
link to the survey. This worked well, but the onus was on the participant to alert me, a situation that lead to more messaging between the participants and the research project.

f. Despite these limitations, the methods selected and the instruments used produced a rich data-set from which the research questions of this study and future studies should profit.

4.8. Contributions

In theoretical terms this study makes a contribution to a limited but growing body of knowledge on social practices supported by mobile phone adoption world-wide and in particular, focuses on Canadian society for which there is very little data.

Mobile phone designers and telecommunications network operators will also benefit from the results of this study since it will provide evidence of the social practices and uses of mobile phones, which could inform the features and functionality design for the future.

The findings from this study could also assist policymakers in designing supplementary means to cope with current challenges to the establishment of mobile communication-related policy in Canada.

Educators, counsellors and other youth workers will benefit from insights into the information practices of young adults presented here. This is often an area where there is little more than anecdotal evidence driving an interaction with a generational disconnect.

University administrations will benefit from empirical evidence of first-year undergraduate experiences in Toronto. As they struggle with student satisfaction,
knowledge on the consequences of social media and the mobile phone in particular on access to social support will perhaps lead to designing a more direct approach to reach students.
Chapter 5- Research Design and Data Collection

| What would I do without my cell phone?  
| Yea tho I walk thru the valley of the shadow of cell, 
| I will fear no dial tone for thou art with me 
| Thy voice mail and thy call waiting, they comfort me... |

*Lyrics from "Cell Phone," by Victor Wooten (2005)*

5.1. Introduction

In the previous chapter, the methodological approach for this study investigating the roles that mobile phones play in supporting the relationships of first-year undergraduates was presented. The goal of this chapter is to facilitate a logical transition from the methodology in Chapter 4 to a presentation of the findings in Chapter 6. To achieve this, Chapter 5 details the following: the samples studied using the quantitative and qualitative instruments described in Chapter 4, a description of the iterative data collection instrument design and a sample of an analytical framework used to map the responses to questions and activities undertaken in the surveys, and interviews to the hypotheses tested. This chapter concludes with a post-facto reflection on the design and measurement processes indicating the strong points as well as offering recommendations for improvement of future studies.

5.2. Background Information

The conceptual framework presented in Chapter 3 is centred on the transition that undergraduates experience in their first year at university. The temporal specificity of this study warranted a research design that allowed data collection to take place at a few different points during the first-year, yet not burden participants with instruments that
were too time-consuming or psychologically taxing. The latter point is critical in this study since I requested young people in the midst of an often difficult social adjustment period to reflect on the state of their friendships.

Mindful of the potential sensitivity around the subject and focused on my objective to keep a significant number of participants involved in the research project for 11-months, I spent time familiarizing myself with the habits, language and behaviour of my intended research subjects before implementing the study on these first-year undergraduates in Toronto in 2007. These data do not appear in the methodology for this study as they were collected as part of other unrelated research projects. However, they proved so valuable to this study that in the future I recommend that they are explicitly built-in to the research design of similar studies.

Collecting background information involved (a) observations of first-year undergraduates at the University of Toronto and Ryerson University on both campuses and in the downtown environment surrounding the campuses, (b) conversations with first-year undergraduates in the academic year preceding the September 2007 intake and c) conversations with high-school students in Toronto to facilitate familiarity with the type of institutional and social context of which the research subjects would be recent products.

As an ethnographic research assistant for a separate research project, I spent two months between May 3rd and August 17th 2007 observing young people in Dundas Square and Nathan Phillips Square in downtown Toronto. Both public squares are in close proximity to both research sites for my study. During this time I took approximately 3,100 photos, produced 100-pages of typed notes and completed 40 behaviour-analysis
forms that documented details from the physical stance and group interaction of persons visiting the squares to the types of devices that they used while in the spaces.

These observations proved to be valuable background for this study and represented an immersion into the day-to-day experiences of students in downtown Toronto. One of the richest sources of background information for this study was watching the way young adults interacted socially with each other in a public space and observing the behaviour of those who were alone in the same environment. Several questions that appeared in the interview schedule took shape during this period, particularly information practice questions such as #37: *How do you typically answer a call (a) from a caller you recognize and (b) from a number you do not recognize?* or #51, *Sometimes when people are together face-to-face, one receives a mobile phone call. Has this ever happened to you? Tell me about how you feel when your friend takes a call (Prompt for apology given/step away/include you in conversation?).* Most of these types of questions were derived from the observations of undergraduates and the responses to these questions produced rich data for this study.

During the observations, I realized that the informal language used within youth interactions was not always familiar to me. I made note of phrases and words I heard that could be relevant to my study, and at a later date I convened two lunches with convenience samples to clarify terms and definitions that I incorporated into my surveys and interviews. For the first lunch I invited four female first and second year undergraduates who worked for the Connected Lives project team led by Dr. Barry Wellman. These were young women with whom I was familiar but not very close, and for three-hours they shared perspectives on being undergraduates at the University of
Toronto. At this lunch, a key insight was that many first-years lived at home and commuted to the campus daily. From the varying opinions expressed about the importance of the mobile phone in their social lives, I developed several questions that juxtaposed place of residence and mobile phone use. I also learned that it would be important not only to ask whether there was a landline available in the residence but whether they used it, since the young women indicated that they never used the home/residence landline even when it was available. I also found out that the best day and time to send the link to the online survey was on a Friday night. As unintuitive as this appeared to be for me, it proved to be incredibly insightful as 70% of participant responses were returned within 8-hours of sending the link late on Friday nights in November and March.

For the second lunch I invited my nephew-in-law and two of his friends for a two-hour chat. These three young men were high-schoolers and offered credible insight into the social dynamics and the use of the mobile phone in the high-school environment. For example, I learned that the term “stranger” which I intended to use as a relationship category held a different connotation that I had originally thought. They indicated that a stranger was a “creepy and shady” person to be avoided, whereas a “random” was a person you met for the first time that you might want to get in touch with later. Also, I came to appreciate that for high-schoolers who had been using mobile phones since Grade 8 or 9, there was very little distinction between friendships based in a virtual space, such as World of Warcraft, and friendships based in physical space. I added Massively Multi-player Online Reality Games (MMORGs) as a category in the name generation component of the sociogram development based on this insight.
The lessons learned from this experience helped hone my research instruments and prepared me as a researcher so that during my study I was able to engage in comfortable dialogues with participants, and I was able to sharpen the questions asked in order to get highly relevant data.

5.3. Description of Participants

As described in Chapter 4, I administered an online survey twice; in November 2007, 173 eligible first-year undergraduates completed the survey and in March 2008, 153 of the same first-years completed the survey. In November 2007, 82% of the participants were from the University of Toronto and the remaining 18% were from Ryerson University. This ratio held fairly consistently in March 2008 where 87% were from the University of Toronto and 12% were from Ryerson University. Similarly, the male-female ratio held somewhat steady over the period of the study; in November 2007, the ratio was 58%:42% in favour of females and in March 2008 the ratio was 61%:39% again in favour of females.

The average age of participants during both surveys was 18 years old. The participants were a mix of Canadian-born and émigré citizens (65%:35%), permanent residents and international students in the percentage ratios 67:13:20 respectively. They hailed from a diverse range of study areas from arts to health sciences (See Figure 5.0)
Thirty-percent of participants changed residence when they started university in 2007, 23% lived on-campus, 18% lived off-campus but not with parents or family, 56% lived with their parents and siblings and 3.3% lived with family but not with their parents.

In terms of length of time using a mobile phone, over 75% of participants had used a mobile phone for over 18 months, see Figure 5.1

Figure 5.0 Chart Showing Participant Areas of Study

Figure 5.1 Chart Showing Participant Length of Time Using a Mobile Phone
5.4. Data Collection Instruments

The principal data-collection instruments used are as follows:

1. Online survey – wave 1
2. Online survey – wave 2
3. Interviews (sociograms)
4. Photos
5. Other logs (mobile phone bills, mobile phone call logs)

Details on the instruments are provided in the subsections below.

5.4.1. Online survey – Wave 1

Administered in November 2007, n=173 and the full completion rate was 88.4% or n=153. There were 74 questions in the survey made up of 49 questions on everyday practice using the mobile phone; 16 questions on mobile phone use within social networks (adapted from a study on Instant Messaging by Anabel Quan-Haase, 2006); and five (5) demographic questions.

Participants took an average time of 10 minutes to answer all questions, and responses were received from 98% of the participants who registered for the study. Responses were all received within 7-days of issuing the survey, and one reminder email was sent to participants who had not completed the survey within 5 days of issue.

Surveys were ported into SPSS version 17 to allow statistical analyses such as frequency analysis, cross-tabulations and correlations to be conducted.
5.4.2. Online survey – Wave 2

Administered in March 2008, n=153 and the full completion rate was 87% or n=133. There were 84 questions comprised of 53 everyday mobile phone information practice questions; 16 questions on mobile phone use within social networks (as in wave 1); 11 demographic questions; and 4 questions regarding interest in taking part in interviews.

Participants averaged 13 minutes to complete the survey and the return rate from the first survey was 88.4% representing a loss of only 20 participants over four months.

Four new mobile phone information practice questions were added to the second wave survey based on data that was determined to be missing from an analysis of wave 1. Examples of questions added include a question on who pays the mobile phone bill and a question regarding the participant’s mobile phone service provider. Additional demographic questions were also added in the second wave including questions on immigration, participant areas of study and identifying the university they attended.

5.4.3. Interviews

Twenty interviews were conducted between July and September 2008. The female to male ratio was 13:7 (65%:35%) which stays close to the survey ratio of approximately 60%:40%.

The interviews took approximately 2 hours each, and participants did not opt to take a break. Food and drinks were provided during the interview.

Participants were all interviewed face-to-face on the 6th floor of the Claude Bissell Building of the Faculty of Information. Participants were asked to recommend a place to
have the interview; however they all opted to come to the University of Toronto, St. George campus. There was one exception: a male participant was interviewed by phone from Calgary where he transferred after the first-year in Toronto.

The interview was made up of two parts: (a) a semi-structured conversation about participant’s daily lives during the term and in the summer and centered around mobile phone practices; and (b) the construction of network diagrams (sociograms) using the participant-led, name generator technique from the Connected Lives study (See Figure 5.2).

Figure 5.2 A Photo of a Sociogram Developed During the Interviews
5.4.4. Photos

Consent was requested for a photograph of the mobile phones of all participants. This data is used for presentation of the study results as a representation of the participant and will be used for further studies on the personalization of devices among young people in Toronto.

5.4.5. Other logs

Interview participants were asked to bring copies of their mobile phone bills from the duration of the study period (i.e. from September 2007-interview date). This was voluntary and I was not permitted to take copies of the bills. Approximately 50% of the participants brought bills to the interviews and we consulted them during the course of the interview, particularly during the longitudinal sociogram development. All of the participants used their mobile phone call logs to respond to questions regarding reciprocity of calls and the number of texts and calls made and received.

5.5. Analytical Framework

From the instruments described above, a substantial quantity of data was collected. In order to manage the data, particularly in light of the research questions and hypotheses, a framework was developed that explicitly mapped the responses to questions and data from the sociograms to the hypotheses under investigation. Since some of the data collected is intended for further study, it was important to use the framework to stay focused on the thesis questions. Table 5.3 shows a sample of the framework that was developed for the surveys. Table 5.4 shows a sample of the framework developed for the interviews.
<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Question Type</th>
<th>Research Questions</th>
<th>Hypotheses</th>
<th>Skip to #</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Why do you use the mobile phone? Select all that apply.</td>
<td>Multiple choice</td>
<td>RQ1, RQ2</td>
<td>H1</td>
<td></td>
</tr>
<tr>
<td>14. Where do you use your mobile phone? Select all that apply.</td>
<td>Multiple choice</td>
<td>RQ3, RQ2</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15. What other activities do you engage in while you use your mobile phone? Select all that apply.</td>
<td>Multiple choice</td>
<td>RQ2, RQ3</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>16. Would you call a mobile phone number even if you knew the recipient was within range of email or home phone?</td>
<td>Dichotomous</td>
<td>RQ3</td>
<td>H1</td>
<td></td>
</tr>
<tr>
<td>17. How comfortable do you feel, in general, about calling someone on their mobile phone if that person gave you his/her mobile number?</td>
<td>Likert scale</td>
<td>RQ2, RQ3</td>
<td>H8</td>
<td></td>
</tr>
<tr>
<td>18. How comfortable do you feel, in general, about calling someone on their mobile phone if you received the mobile number from a third party/directory?</td>
<td>Likert scale</td>
<td>RQ2, RQ3</td>
<td>H8</td>
<td></td>
</tr>
<tr>
<td>19. Do you keep your mobile phone ringer on all the time or do you vary ring settings? Select all that apply.</td>
<td>Multiple choice</td>
<td>RQ3</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>20. Which one would you be most upset about losing for 1 day?</td>
<td>Multiple choice</td>
<td>RQ3</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>21. Which of the following descriptions apply to your daily life at the moment?</td>
<td>Multiple choice</td>
<td>RQ2</td>
<td>H7</td>
<td></td>
</tr>
<tr>
<td>22. Which of the following descriptions apply to your daily life at the moment?</td>
<td>Multiple choice</td>
<td>RQ2</td>
<td>H6</td>
<td></td>
</tr>
<tr>
<td>23. Choose the statement that best describes your social life at this point in time</td>
<td>Multiple choice</td>
<td>RQ2</td>
<td>H6</td>
<td></td>
</tr>
<tr>
<td>24. Fill in the blank in the following sentence &quot;When I feel lonely.&quot;</td>
<td>Likert scale/Rating scale</td>
<td>RQ2, RQ3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3 Framework Mapping Survey Questions to Research Questions and Hypotheses
<table>
<thead>
<tr>
<th>Interview Question(s)</th>
<th>Research Questions</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECTION 1 – MOBILE PHONE USE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. – 7. &amp; 9. Introduction to school life – general questions</td>
<td>Context</td>
<td>-</td>
</tr>
<tr>
<td>8. What about going out <strong>socially</strong> to visit family, friends, sorority mates or people you are in classes with? <strong>Who</strong> do you go out with? How often do you do that? Would you do it more if you could? (Why /not?)</td>
<td>RQ2</td>
<td>H4</td>
</tr>
<tr>
<td>10. - 17. Computer skills questions</td>
<td>Context, other ICT use</td>
<td>-</td>
</tr>
<tr>
<td>18. - 22. Mobile phone use and ownership</td>
<td>RQ3</td>
<td>-</td>
</tr>
<tr>
<td>23. What made you <strong>decide</strong> to get a mobile phone (for school, parents, leisure). Whose idea was it?</td>
<td>RQ1, RQ2</td>
<td>-</td>
</tr>
<tr>
<td>24. -31. Mobile phone use</td>
<td>RQ3, RQ2</td>
<td>-</td>
</tr>
<tr>
<td>32. - 37. Mobile communication</td>
<td>RQ1, RQ2, RQ3</td>
<td>H1, H2</td>
</tr>
<tr>
<td>38. - 42. Mobile phone information and social practices</td>
<td>R2, R3</td>
<td>-</td>
</tr>
<tr>
<td>43. - 49. Mobile phone practices - friends</td>
<td>R1, R3</td>
<td>H1, H2, H8</td>
</tr>
<tr>
<td>50. - 55. Sharing mobile phones</td>
<td>Context – ownership and personalization</td>
<td>-</td>
</tr>
<tr>
<td><strong>SECTION 2 – NAME GENERATOR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Name generating</td>
<td>RQ1</td>
<td>H1, H2, H3 (longitudinal), H5 (longitudinal)</td>
</tr>
<tr>
<td>3. Roles – multiplexity</td>
<td>RQ1</td>
<td>H1, H2, H3 (longitudinal),</td>
</tr>
<tr>
<td>7. Mini survey on mobile phone use</td>
<td>RQ1, RQ2, RQ3</td>
<td>H2, H3 (longitudinal), H4, H5 (longitudinal)</td>
</tr>
<tr>
<td>8. Specific social event questions</td>
<td>R2, R3</td>
<td>H4</td>
</tr>
<tr>
<td>9. Social support</td>
<td>Contextual</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 5.4 Mapping Interview Questions to Research Questions and Hypotheses

5.6. Post-facto Reflection on the Design and Data

The purpose of this section is to offer the reader and future researchers interested in using a similar approach a sense of the strengths and opportunities for improvement in this study.

5.6.1. There are several strong design elements from this study that are worth highlighting in this chapter.
(a) Using a multi-wave approach allows the researcher to make small adjustments to the question set without impacting the validity of the data sets. This iterative adjustment of the collection instruments proved very useful when a couple of “ah-ha” moments arose while conducting the preliminary analysis of the wave 1 data.

(b) Data collected from the surveys were referenced in the interviews so that participants had the opportunity to reflect on changes without having to recall such changes from memory.

(c) The observations of students and informal lunches with university and high-school students enriched the study in immeasurable ways. While not an ethnographic study, the survey instruments and interview schedule benefited from observational data. The conceptual framework for this study elevates the importance of everyday ritual practice as context for mobile phone use by young people in their transition through the first-year at university. It was serendipity that allowed ethnographic values to be included in this research project and it is highly recommended if co-constitution theory underlies other study of mobile phone information practices.

(d) Using participant-led network visualizations or sociograms as very fundamental to the findings on network evolution for this study. I adapted Quan-Haase’s survey derived social-network data technique and combined it with the interview-based sociogram development to enable the visualization of networks from November 2007-September 2008 with a low-load on the participants.
(e) Mixed methods proved perfect to test the hypotheses that included
generalizable, practice type conjectures with ego-centred network detail. The
volume of data collected is at times overwhelming but by using a framework
such as the ones presented in this chapter, the effort proved its worth.

5.6.2. As with all exploratory and empirical research there are also some opportunities
for improvement in the research design. With the benefit of hindsight, I propose
the following recommendations to the research design:

(a) I missed opportunities in the survey to ask about the context of daily life in
November and March placing a recall burden on participants during the interview.
I would add a number of questions that inquire about who lives in the residence,
what the daily schedule is like, etc., which would allow for comparisons at the
interview stages.

(b) To make “space” for the new questions proposed above, I would remove some
repetitive questions from the second wave survey, such as questions on whether
participants had a landline in the residence, since this question was already
answered in November and the response was unlikely to change in four months.

(c) Using a raffle-reward for compensation was a good idea, however using donated
devices had its challenges. In one case the Blackberry device donated
malfunctioned within a few weeks of the participant receiving her reward. I had
not developed a mechanism to assist participants with servicing a non-contract
device and this was a time-consuming learning. I would strongly recommend a
discussion and written agreement on process with the donor of the prizes on how to manage such circumstances.

Equipped with an understanding of the research design and data that was presented in this chapter, the following Chapter 6 presents the findings of this study arranged around the conceptual framework and the testing of hypotheses developed in line with the research questions.
Chapter 6- Findings

6.1. Introduction

This chapter presents the findings of the study that address the three research questions. The chapter starts with Section 2 that provides an overview of the general findings regarding the research participants. This is followed by three sections, each presenting data relevant to the research questions. To recap, the following are the research questions that guided the inquiry:

- RQ1: Is there evidence that mobile phones are used to maintain and extend personal networks?
- RQ2: What information practices are demonstrated when mobile phones are used in social interactions within the transitional first-year?
- RQ3: To what extent are mobile phones used to support and facilitate personal network changes for first-year undergraduates?

Keitai ni kawareteru?
Samenu yume nomama ikii soide ikuno
Kao no nai aijyoo to katatema ni tawamureru
Hitori ga sukinano

You are fed by your mobile phone aren't you?
Going to die in a hurry from dreaming and never waking up
Affection without a face is my play partner to pass the time with
I like being alone myself

Translated from Japanese by Bluemoonmemory on YahooAsk.
For each of the research questions the relevant responses from both online surveys (i.e. November 2007 and March 2008) and the data collected from the interviews (i.e. June-August 2008) are presented. The following three sections corresponding to the research questions each conclude with a discussion integrating the findings. The purpose of this chapter is to select and summarize the data and identify patterns and points of interest that arise from the data that are further analyzed in Chapter 7. The first section (Section 6.2) presents a portrait of the research participants as represented from the data. This provides a foundational proxy for the participants from which the other findings may be built upon.

In response to Research Question 1 concerning Youth Sociality and the Mobile Phone, Section 6.3 identifies whether there is or is not evidence that mobile phones are used in a meaningful way by first year undergraduates to maintain existing friendships. The study findings are used to test the hypothesis 1 (H1) that relative to use with intimate ties, the mobile phone is used less frequently to maintain relationships with peripheral network members such as “somewhat close friends,” “acquaintances,” and “strangers” — categories previously defined within the Research Methods section. This section also identifies whether or not there is evidence that mobile phones are used by first year students to extend their networks, or plainly, to make new friends. Thus, the findings are used to test hypothesis 2 (H2) that the personal use of the mobile phone among young adults for intimate relationships makes the device unlikely to be used to initiate relationships with new acquaintances or strangers. Following from H1 and H2, I hypothesize that during the transition through the first year, undergraduates use the mobile phone to mitigate feelings of loneliness (H3) by increasing voice and text contact.
with their intimate ties. H3 is tested with the study findings, and the section concludes with a brief summary.

Section 6.4 focuses on Research Question 2: What information practices are demonstrated when mobile phones are used by youth within the transitional first year? In this study, information practices were investigated by considering co-constitutive elements made up of (a) the characteristics of the mobile phone (i.e. mobile phone affordances) and (b) the everyday practices of first-year undergraduates (i.e. rituals). Additionally in this section, the findings are used to test hypothesis 4 (H4): the mobile phone is used to construct order in the daily lives of first-year undergraduates by controlling communication flow. Then, using these findings, I test the fifth hypothesis (H5) that some information practices involving the mobile phone have become ritualized for young people.

In Section 6.5, the findings that elucidate the extent to which mobile phones are used to support and facilitate personal network changes for first-years (RQ3) are summarized. The purpose of this line of inquiry is to examine the role of mobile phones in the interaction rituals enacted as part of youth sociality. The final hypothesis (H6) conjectures that the mobile phone use contributes to the construction of order and predictability in relationships when first year students transition into university life. This hypothesis is tested using the data collected and presented in summary form in this section.

The findings presented in this chapter are a combination of quantitative data from the two online questionnaires in the form of descriptive and inferential statistical tests,
qualitative data from the interviews conducted in the form of personal accounts, ego-centric network diagrams and photos of participant devices.

At the conclusion of examining the findings, three key themes emerged: ritualized mobile phone practices increase individual network cohesion by (1) providing the means to maintain ties thereby mitigating perceptions of loneliness and aloneness, (2) empowering first-year undergraduates to construct order and predictability during this transition and (3) providing the means to immediately and frequently access emotional support established through reciprocity and trust. These three themes are more thoroughly analyzed in Chapter 7.

6.2. A Portraiture of Toronto’s Millennial Generation

6.2.1. These “crazy kids today”: The Echo Boomers/ Generation Y’s/ First Digital/ Millennial Generation

Who are the participants in this study, what are they like and how different is the world in which they are coming of age? While it is common — to the extent that works of film and literature, for example — are created based on two generations looking at each other in wonder at the perceived variance in their attitudes and perspectives, there are some meaningful events in recent history that have made the current socio-cultural environment unique for those born since 1980. This group has been labeled Echo Boomers indicating their generational tie to the Baby Boomers of the 1930’s and 1940’s; Generation Y’s as successors of Gen Xers; and First Digital tying their development to the rise of semiconductors that brought digital technologies such as the Internet, pagers and personal computing. From a study of this generational cohort in the United States,
William Strauss and Neil Howe argue that the term *Millennials* is how this generation prefers to describe themselves. Regardless of how they are labelled, we can ponder that this group of young people are the first without a distinct memory of the Soviet Union as a world power. Their peers in countries like Trinidad and Tobago, Barbados, Kenya, Zimbabwe, Singapore, Bahrain and India know only the independent countries of their birth and hold no recollections of British colonial rule. The decades preceding 1980 saw developing countries such as Greece and South Korea “develop,” and institutional racism become unfashionable in countries like South Africa and the Unites States, and by the time 18-year olds were able to vote, Barak Obama was a leading candidate in the US presidential race.

Using the findings of this study I can provide a perspective that answers the question, Who are these kids? and offer the following summary of the survey data regarding Millennials in Toronto.

### 6.2.2. *Toronto's Millennials: A Composite Summary*

Based on the survey data from November 2007 and March 2008, the average participant was an 18-year old female who lives at home with her parents and commutes to the University of Toronto (U of T), St. George campus daily. She was born in Canada and has used a mobile phone since she was in grade nine or approximately 14 years of age (see Figures 6.0 and 6.1). A few of her high school friends have also started at U of T, but many are at universities elsewhere and others have entered the world of employment. Although she does have part-time jobs during the holidays her parents are her source of financial support.
She uses her mobile phone every day and engages in various activities on it such as speaking and texting or setting alarms, totalling between 10 and 25 times per day. The
majority of her very close and somewhat close friends also use a mobile phone. She describes herself as a “talker” and “texter” in equal terms, and since she started university she began to use text messaging for much of her day-to-day communication with very close friends and family. Although it appears she is always on the phone, in comparison to some of her friends, she is a moderate mobile phone user. Her usage increased from about 60 minutes per month in high school to about 200 minutes per month when she started university, and she had to change her mobile phone service plan at least twice to accommodate her increased usage. Most of her mobile phone voice calls are between one and five minutes long and are social in nature. She rarely uses her mobile phone for work-related communication. Her mobile phone bill is about $60CND per month and her parents pay all of the costs.

When asked the question, “Which would you be most upset about losing for one day?” she chose the mobile phone two-to-one over email access, social networking software (e.g. Facebook) and search engine access (see Figure 6.2). She manipulates the look and sound of her mobile phone and refreshes this approximately every six weeks. She cannot easily articulate her reasons for personalizing her phone but since she sees the mobile phone as a key part of her life she believes that it is reasonable that it reflect her self-identity.

In the first month of her new life as an undergraduate she attended Frosh Week social events and exchanged mobile phone numbers with six to ten new acquaintances; however, when she felt lonely she selected the mobile phone as her first choice to reach out to her friends and family, versus using a landline, email, Facebook or instant messenger (see Figure 6.3). During the first semester, the majority of her time spent on
the mobile phone was texting or talking to pre-university friends and family. By the second semester she made new friends through face-to-face interactions in classes and in residence; she began to spend more time coordinating meetings with her new friends using her mobile phone to do so, thus decreasing the amount of time spent on the mobile with her pre-university friends. This shift was reflected in her mobile phone call log.

Apart from talking and texting she also uses her mobile phone as a replacement for a wrist-watch, an alarm clock, camera, music player and “little black book.” She rarely uses a landline even if one is available and does not call her very close or close friends on a landline even if one is accessible to them. She always has her mobile phone with her, never switches it off and goes to bed with her phone within arm's reach. If she receives a call or text during the course of the night, she will wake up to attend to it.

Figure 6.2 Showing Response to the Question, “Which one would you be most upset about losing for 1 day?”
The summary constructed above provides some insight into the importance of the mobile phone to first-year undergraduates in Toronto. By considering the data in aggregate, a composite could be drawn representative of some patterns of young adult behaviour vis-a-vis the mobile phone become more apparent, especially during a transitional time in the lives of young adults. While creating composites from a generalization of survey data is useful in identifying patterns and trends, generalizations can also be misleading since the portrait drawn is a crude approximation and presents the group of participants as a homogeneous whole. The interview data offered additional data points that illuminated the unique aspects of the participants, and when the interview data are combined with the survey data more significant insights were revealed. The following sections exemplify the type insights that I gained from mixing the two interview methods.

### Figure 6.3 Table Showing the Rank Order Choice of Technology Selected to Mitigate Loneliness.

<table>
<thead>
<tr>
<th>Choice</th>
<th>First choice</th>
<th>Second choice</th>
<th>Third choice</th>
<th>Fourth choice</th>
<th>Fifth choice</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>my residence land-line phone</td>
<td>16.9% (25)</td>
<td>24.3% (36)</td>
<td>10.8% (16)</td>
<td>13.5% (20)</td>
<td>34.5% (51)</td>
<td>3.24</td>
<td>148</td>
</tr>
<tr>
<td>my mobile phone</td>
<td>48.1% (76)</td>
<td>24.7% (39)</td>
<td>12.7% (20)</td>
<td>8.9% (14)</td>
<td>5.7% (9)</td>
<td>1.99</td>
<td>158</td>
</tr>
<tr>
<td>email</td>
<td>5.1% (8)</td>
<td>19.1% (30)</td>
<td>25.5% (40)</td>
<td>31.8% (50)</td>
<td>18.5% (29)</td>
<td>3.39</td>
<td>157</td>
</tr>
<tr>
<td>instant messenger</td>
<td>21.3% (33)</td>
<td>23.2% (36)</td>
<td>27.7% (43)</td>
<td>18.7% (29)</td>
<td>9.0% (14)</td>
<td>2.71</td>
<td>155</td>
</tr>
<tr>
<td>facebook/myspace</td>
<td>9.2% (14)</td>
<td>9.9% (15)</td>
<td>24.3% (37)</td>
<td>27.0% (41)</td>
<td>28.6% (45)</td>
<td>3.58</td>
<td>152</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

*answered question* 158
6.2.3. Commuters versus On-campus Residents

From the survey data, first-years who live at home with their parents and commute to campus appear to have a different social experience of undergraduate life than those living with other students or those living with relatives who are not their parents. In general, participants who lived in on-campus residences (23% of those surveyed) were more satisfied with the amount of time they spent going out or hanging out with their network of friends and even believed that they perhaps spent too much time socializing with others in their social network. Comparatively, those participants living at home with their parents (56% of those surveyed) felt that they did not go out or “hang out” with their friends as much as they would like (see Table 6.4 for results of a cross tabulation of residence and satisfaction with social life).

<table>
<thead>
<tr>
<th>Choose the statement that best describes your social life at this point in time.</th>
<th>On campus</th>
<th>Off-campus, but not with parents/family</th>
<th>At parent(s)’ house</th>
<th>Not at parent(s) house, but with family</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I go out hang out with friends more than I would like to.</td>
<td>18.8%</td>
<td>7.7%</td>
<td>8.8%</td>
<td>0.0%</td>
<td>32</td>
</tr>
<tr>
<td>I go out hang out with friends enough to satisfy my social needs.</td>
<td>46.9%</td>
<td>26.9%</td>
<td>36.3%</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>I do not go out hang out with friends much at all, and I sometimes feel lonely.</td>
<td>0.0%</td>
<td>19.2%</td>
<td>3.8%</td>
<td>25.0%</td>
<td>4</td>
</tr>
<tr>
<td>I do not go out hang out with friends much at all, and this is by choice.</td>
<td>18.8%</td>
<td>30.8%</td>
<td>41.3%</td>
<td>50.0%</td>
<td>100</td>
</tr>
<tr>
<td>Despite going out hanging out with friends, I feel lonely.</td>
<td>6.3%</td>
<td>7.7%</td>
<td>2.5%</td>
<td>25.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Chi-square with 15 degrees of freedom = 26.798, p = 0.03 (see Appendix I a).

Table 6.4 Showing a Crosstabulation of Place of Current Residence and Satisfaction with Social Life.

These results indicate that there is a statistically significant relationship between where students live and their social life. Those students who lived either with their
parents or in campus residences did not report feeling lonely as frequently as those who lived off-campus either with other family members or without living with any family. From the interviews, participants reported using their mobile phones in the first semester to reach out to their pre-university friends and close family members in the first weeks when they felt lonely and/or out-of-sync with the people they initially met on campus. The following are excerpts from four interviews with participants that further illustrate these points and bring additional nuances into focus. The participants are Maya and Christopher, commuters to the University of Toronto and Ryerson University respectively; Will and Jessica live in on-campus student residences. In addition, Will is an international student and Jessica is from a suburb called Etobicoke which is about 45 minutes from the downtown core.

**Interview 1** - This first excerpt is from my interview with Maya who is 18-years old and commutes to the University of Toronto from Scarborough.

*Interviewer: How often did you feel that you were in tune with people around you?*

Maya: Here it's different because the people downtown at U of T are very affluent and come from mainly prosperous homes from [Woodbridge] and I come from Scarborough. Scarborough seems like the ghetto by everybody. So it was really hard to connect to that kind of Barbie girl lifestyle that most of my friends were leading here, but I just came to school and did my schoolwork. And then I went home with my friends, I guess.

*Interviewer: How often did you feel completely alone?*
Maya: At the beginning it was very often, because I didn't know the downtown core. I didn't know how to get to class. And at that point, my friends, they were trying to figure out their schedules too. But as the semester progressed I got more used to it and I wasn't so self-conscious. I didn't have to sit alone on a doorstep and eat my sandwich at lunch like I had to at first. I got used to it, I guess.

Interviewer: Did having a mobile phone affect how you felt?

Maya: It did because if I didn't have a [mobile] phone I would be much more nervous about it because at this point I knew that if I had an hour to spare, at least I could call one of the 200 contacts on my phone and try to prolong the time I was there. Also, in case I got lost or something.

Interview 2 - This second interview excerpt is with Will who is a 17-year old male, international student from Beijing, China now living in an on-campus residence while attending the University of Toronto.

Interviewer: I imagine you left behind quite a large group in Beijing. Do you use your mobile phone to connect with those friends or do you find that you use it for local friends or do you do different things?

Will: In the first semester, I got involved with our Engineering Society. We hold a lot of engineering events. So in terms of going out and doing something, definitely weekly, you know, during the weekends. Definitely always things to do. So in terms of that, that's pretty busy. Like I have different sets of friends. There are some that I know just at school. Either from residence or from high school that we do other things. I
actually went to high school in Beijing. I have some friends who are actually just here with me doing different programs.

First when I came here [in September] there was a couple of times when I'd maybe [text] message a couple of friends from abroad. It's hard to call them. Maybe [text] messaging a little a bit. But mostly I did it through email or Skype online calling. So that was more what I used. Less the mobile phone...

*Interviewer: What about now [in July]?*

Will: It's pretty much the same, I'm moving even more towards - I rarely [text] message people abroad now. It's mostly just all email, Facebook or Skype. Well now the only time that I actually use text messaging abroad is for my parents. If my Dad just wants to find out what I'm doing right now, he'll text message me and I'll text him back. That's pretty much the only reason. If they need to know exactly what I'm doing or they have something urgent to let me know. Mostly that's what it's for.

*Interviewer: Did any of your friends from Beijing [text] message you?*

Will: Yeah, first semester a little bit. Now rarely.

**Interview 3** - This third excerpt is from an interview with Christopher who is a 17-year old male student commuting for an hour each way from Scarborough to attend Ryerson University.

*Interviewer: What about going out socially to visit family, friend, or people you are in classes with? Who do you go out with?*
Christopher: First semester it was my first year in university so it was just hacking down and hitting books but compared to that in second term I learned to budget my time properly and find time to socialize with the new friends I had and the old friends from high school.

Interviewer: In the first term did you find that you socialized a lot more with your high school buddies?

Christopher: Yeah, for sure.

Interviewer: And are a lot of your high school buddies at Ryerson with you?

Christopher: About 3 or 4 of them are. Most of them go to either York or U of T.

Interviewer: So - correct me if I'm wrong - in the first semester you're hanging out with your high school buddies. But by the second semester tell me how that changed.

Christopher: Well, from classes I got to know a few people. Plus I went to the Frosh, right? So I got to know a few people there which were in my first year classes, got to know them better, and then hung out with them mid-first semester and pretty much all second semester. I felt left out usually on pub nights - 'cause I'm not old enough[to go]! So it was kind of a waste for me to go there. But other than that, yeah, and I guess…

Interviewer: Not old enough in what way?

Christopher: I'm 18 right now but I was 17 in the first semester. You have to be 19 before you well can drink. My faculty of ITM they did it [Pub Nights], I think, every month, something like that, where they have actual invites and emailed you or whatever. But other than that it was just regular pub nights, I think every Thursday, where the residence had them. It was just a regular thing. Those were not a big deal. But when ITM had it, that was harder because they are my group.
**Interviewer:** Did having a mobile phone affect how you felt in the first semester?

Christopher: Yeah, it kept me in contact when I didn't have any classes or anything to do. Because when I have to go to the gym I have to eat first and I can't eat and then go right away, so I used my phone to call and see if anyone had had lunch or wanted to go for lunch. These where mainly my high school friends who came to Ryerson.

**Interview 4** - The fourth excerpt is from my interview with Jessica who is 18 years old, is from a suburb outside Toronto and lives in residence at the University of Toronto during the school year.

**Interviewer:** In the first semester how often do you find yourself waiting for people to call or write?

Jessica: A fair bit. A couple of my friends from high-school go to U of T too, but they were in the residence across the street. I connected with their res more, ours was more closed doors, so I'd hope they give me a call. They didn't and this led to some friendship issues. I'd see all the stuff they were doing on Facebook and all they had to do was you know push a button and include me.

**Interviewer:** Did you feel it was difficult for you to make friends?

Jessica: I prefer one-one-one, face-to-face but at res we had a quiet floor. I have lots of social anxiety so living in res and meeting a whole group of people in groups was harder. Exam time people lingered more and I got to know people better. A late arriving
Portugese student and I clicked and would sit in the common areas and that encouraged more people to do the same.

*Interviewer: How often did you feel completely alone?*

Jessica: I started the year off with a break-up, that definitely makes a statement. My parents left for Munich too so it was kinda tough in that respect.

*Interviewer: Did the mobile phone affect the way you felt?*

Jessica: I think so, it was my only mode of communication. Feels like it gives me a weird sense of hope that people want to call me. There were times that I didn't want to go to meals and that's when my phone was useful. I'd put my phone on the table and it says like, “people are coming” (laugh). You get kind of disgusted with yourself — it's not right.

*Interviewer: You said that you prefer face to face communication. When would you use your phone to talk or text?*

Jessica: Now, in the summer, I live out of the way in Etobicoke. My old roommate lives in Burlington now and she also went through a bad break-up so sometimes she wants someone to talk to and I was ready to go to bed so I'd talk ot her on the cell phone. Its my only phone during school, but I am not dependent on calls. Living on campus you run into people a lot, and get involved with stuff.

From the interviews we can note a few instances where both the commuting students and on-campus residents indicate that they use their mobile phones to call or text message pre-university friends and family when faced with spare-time. However, more often it was the on-campus residents who would have more opportunities to “run into
people” and they talked about filling their spare-time with residence or student group activities more than commuters did. Those in residence also reported using their mobile phones less frequently in general compared to commuters in the first semester. To test this observation from the interviews with the larger sample from the surveys, I returned to the survey data and constructed two crosstabulations: the first queries change in residence at the beginning of the university year against the frequency with which those students who use the mobile phone (see Table 6.5) while the second crosstabulation compares the student's place of residence during the first year with their frequency of mobile phone use (see Table 6.6). In the former I wanted to see if the physical move itself was related to the frequency of daily communication compared to those who had not moved. In the latter crosstabulation I wanted to see if where the student moved to was related to the frequency of use of their mobile phone use when compared to those who stayed in the parental home.

<table>
<thead>
<tr>
<th>Did you change residence/move when you started university?</th>
<th>On average, how frequently in the day do you use the mobile phone?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Very often (More than 25X per day)</td>
<td>Sometimes (10-25X per day)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>No</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

Chi-square with 3 degrees of freedom = 3.301, p = 0.347 (see Appendix I b).

Table 6.5 Showing a Crosstabulation of Change in Residence and the Frequency of Daily Mobile Phone Use.
Chi-square with 9 degrees of freedom = 5.148, p = 0.821 (see Appendix I c).

Table 6.6 Showing a Crosstabulation of Place of Current Residence and the Frequency of Daily Mobile Phone Use.

In both cases chi-square results indicate that there is no statistically significant relationship between where residence location and student’s mobile phone usage. By adding the results presented in Table 4 it becomes evident that among heavier users of the mobile phone (those who use the mobile phone more than 25 times per day), those who changed residences before the first semester and those who did not, shared almost the same frequency of use; however, more of the students who continued to live in their pre-university residences were heavier users of the mobile phone (65%) compared to those who had moved (50%). Put another way, students who moved at the start of their university life used the mobile phone less frequently than those who stayed where they were. Table 5 presents a refinement of this finding by identifying where the students moved or where they remained. An examination of this table shows that students who moved to on-campus residences were among the lightest users of the mobile phone with about 21% using the mobile phone fewer than five times per day. This is compared to those who moved to off-campus housing, the heaviest users of the mobile phone, with 35% using the mobile phone more than 25 times per day. From Table 5 we can also observe that when the two higher frequency-of-use categories are combined, first-years
living at home with their parents use the mobile phone with a higher frequency than those
in on-campus and non-parental off-campus residences. This suggests that while the
mobile phone plays a role in the social networks of students both on and off campus, it is
especially useful to those who maintain daily face-to-face interaction with their parents,
siblings, and in some cases extended family, while attending university. This finding will
be further explored in the following section.

6.2.4. Gender and the Mobile Phone

When analyzing the information practices surrounding new media, gender is often
a point of interest. In this section, I look to the data to determine whether there is or is not
evidence of similarities and differences in the use of mobile phones by young men and
women in this population. In Chapter 2 some perspectives on gender and communication
were introduced. To recap, while there are attempts to equate communication to
biological differences in men and women, there is very little evidence that interpersonal
communication is hardwired on a chromosomal level. There are also persectives that
associate folk-understandings of gendered communication practices to culturally
embedded stereotypes that claim women to be more talkative than men. A Pew Internet
Report on teen communication (2007) described super-communicators as teenaged girls
who used several forms of communication — text and voice-based — in their daily
interactions. Using the dataset from this study of first-year undergraduates, I turn my
attention to the results from this study to gain a better understanding of whether or not
these Toronto Millenials show gendered behaviours in their personal network interactions
involving the mobile phone.
Comparing gender with frequency of mobile phone use there is evidence that among heavy users (i.e. persons who use the mobile phone more than 25 times per day), young men and young women displayed more similarities than differences. In November 2007 when participants were in their first semester at university, approximately 14% of participating men and 19% of women were heavy mobile phone users (see Table 6.7). The chi-square results indicate a statistically significant relationship between gender and frequency of mobile phone use.

By the middle of the second semester, more men and women became heavy users of the mobile phone with approximately 27% of men and 26% of women increasing the frequency of their use (see Table 6.8). Therefore, among those first-years who use the mobile phone most frequently in their daily lives, there was evidence that both young men and young women exhibited similar frequency of use practices, and they increased their use of the mobile phone over the course of the first year in a proportional manner.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Count</th>
<th>Very Often  (more than 25X per day)</th>
<th>Sometimes (10-25X per day)</th>
<th>Infrequently (5-9X per day)</th>
<th>Rarely (less than 5X per day)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>14.1%</td>
<td>40.6%</td>
<td>26.6%</td>
<td>1.6%</td>
<td>64</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>Count</td>
<td>19.3%</td>
<td>37.5%</td>
<td>13.6%</td>
<td>14.8%</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>174</td>
</tr>
</tbody>
</table>

Chi-square with 8 degrees of freedom = 35.789, p = 0.00 (see Appendix I d).

Table 6.7 showing a Crosstabulation of Gender and the Frequency of Daily Mobile Phone Use in Semester 1.
Chi-square with 3 degrees of freedom = 30.58, p = 0.383 (see Appendix I e).

Table 6.8 showing a Crosstabulation of Gender and the Frequency of Daily Mobile Phone Use in Semester 2.

While among heavy users there is evidence of similar usage patterns between the genders, in the other categories of use there were significant differences. For example, in the category of people who use their mobile phones between 10 and 25 times per day, in the first semester, male participants led females 41% to 38%. In the same category, by the second semester, the percentage of females stayed about the same (39%) while males had a drop of about 17 percentage points. Thus, among relatively moderate users, men decreased the frequency of their mobile phone use in the time-period from the first to second semesters compared to women who held usage frequency constant in both semesters. This observation was even more dramatic in the category with the lightest mobile phone use frequency of less than five calls/texts/other activities per day. In the first semester young men reported that only 2% of them had such light usage of the mobile phone, compared to a significantly greater number of young women in the same category (15%). However, by the second semester young men reduced their daily use of the mobile phone phone so that 17% of them used the mobile phone less than 5 times per day, compared to women whose usage once again stayed relatively constant in this category (14%).
To analyze what could account for these similarities and differences, I examined the reasons driving mobile phone use (for example personal safety, loneliness, maintaining existing relationships, meeting new people, information access and coordinating meetings) and crosstabulated these reasons with gender across both semesters. The results for the first and second semesters are presented in Tables 6.9 and 6.10. Chi-square results indicate that there is a statistically significant relationship between gender and the reasons for mobile phone use.

<table>
<thead>
<tr>
<th></th>
<th>Personal Safety</th>
<th>Avoid Loneliness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>% within Sex</td>
<td>46.9%</td>
<td>53.1%</td>
</tr>
<tr>
<td><strong>female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>65</td>
<td>16</td>
</tr>
<tr>
<td>% within Sex</td>
<td>77.3%</td>
<td>22.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Maintain and existing relationship</th>
<th>Meet new people</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>% within Sex</td>
<td>62.5%</td>
<td>37.5%</td>
</tr>
<tr>
<td><strong>female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>69</td>
<td>12</td>
</tr>
<tr>
<td>% within Sex</td>
<td>80.7%</td>
<td>19.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Information access</th>
<th>Coordinate meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td>% within Sex</td>
<td>51.6%</td>
<td>48.4%</td>
</tr>
<tr>
<td><strong>female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>65</td>
<td>16</td>
</tr>
<tr>
<td>% within Sex</td>
<td>31.8%</td>
<td>68.2%</td>
</tr>
</tbody>
</table>

* See Appendix I f for chi-square results and p–values.

**Table 6.9 Showing a Crosstabulation of Gender and the Reasons for Using Mobile Phones in Semester 1.**
Table 6.10 Showing a Crosstabulation of Gender and the Reasons for Using Mobile Phones in Semester 2.

Comparing participant self-report data on why they use the mobile phone from the November 2007 and March 2008 surveys that correspond to the first and second semesters, some striking patterns emerge. In the categories “Personal safety,” “Avoid loneliness,” “Maintain existing relationships” and “To coordinate meetings,” young men and women had similar levels of responses over the two semesters. For the reasons “Personal safety” and “Avoid loneliness,” young women consistently showed a higher usage of the mobile phone than their male counterparts.

Of the six reasons why mobile phones may be used, the largest difference between young and women came in the “Meet New People” category; in the first semester approximately 19% of men surveyed selected this as a reason that they used

* See Appendix I g for chi-square results and p–values.
their mobiles compared to 6% of young women. This seems reasonable as we can postulate that men may be less wary of exchanging mobile phone numbers with people that they are meeting for the first time, compared to young women who are more likely socialized to be careful in this regard. The low percentages in both genders does indicate that the mobile phone number is viewed by young men and women as a more personal contact than other communication media. This point will be further considered later in this chapter.

Even more interesting is that this difference of 13 percentage points between men and women closed to one percent in the second semester when only 10% of young men reported using the mobile phone to meet new people, while young women reported a slightly increasing propensity to use the mobile phone in this way (9%). In other words, by the second semester, both young men and young women settled at similar, low usage patterns regarding using the mobile phone with new acquaintences. From the interviews there are some clues to what may account for this.

The following excerpts from two interviews further illustrate these findings. The first is a section from an interview (Interview 5) with Naomi who is 19; the second is from an interview (Interview 6) with Earl who is also 19.

**Interview 5** - Naomi, 19 years old, lives with her parents and two older sisters and commutes to the St. George Campus at U of T.

*Interviewer: How do you feel about using your mobile phone number as a general contact for you?*

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22 See Appendix IV for a brief discussion of linear regression analysis.
Naomi: I love it, I don't think I could do without it, now I've been exposed to it.

_Measurer: So you never just say, “I'm just going to use email”?_

Naomi: No, I don't think ever. See, some people don't do email at all. One of my friends, she's a really good friend of mine, I sent her, on my birthday, I sent her thanks for being such a good friend. She replied five months later, okay? It's so funny cause she doesn't do email. But if I called her at home, she would have gotten back to me within an hour.

_Measurer: Who would you not give your mobile phone number to?_

Naomi: Probably strangers, like, random strangers. Say if I just met somebody in class, I wouldn't give them mobile right away, I'd probably give them my email address. And then, people I don't want to contact me easily, I wouldn't give them my cell number.

**Interview 6** - Earl, 19 years old, lives with his girlfriend in a downtown, off-campus apartment during the term and with his parents in a suburb of Toronto for the summer.

_Measurer: How do you feel about using your mobile phone number as a general contact for you?_

Earl: Well it is anyway. It is my general contact. Everyone calls my phone. I don't even know if many people know my house number. I'm very comfortable.

_Measurer: After meeting someone for the first time who you would like to connect with again, what contact information would you give to them?*_
Earl: It depends. If it's a guy, it's just my [mobile] phone, because a guy's like, you know, whatever. If it's a girl, I think I might give my email. Or my MSN or something like that, just because they don't think you're coming on to them or something like that. If it's a girl and, um, it actually depends, okay? If it's a girl and I have no interest in her whatsoever, just want to be friends, I'll still give her my email instead, and maybe [mobile] phone number as well, but I wouldn't call them.

Interviewer: Why?

Earl: I don't know. It's kind of weird. I don't know why, right? It's just like that. If it was a girl I'm interested in, well, I've been going with my girlfriend for 2 years, so it's kind of been a while now. But if it was a girl I was interested in, I'd give her my email first coz I don't want her to think I'm coming on too strong. And then, talking to someone on MSN is a lot more non-personal. Whereas if you call them right away, I guess there's all those quiet times, you don't know what to say. MSN you can always walk away, come back, whatever, know what I mean? It has its comfort level. Usually everyone gives away their email, they don't care, it's not a big deal. But phone number, some people might feel that's too much happening.

Interviewer: Who would you not give your mobile phone number to?

Earl: Random people? My phone number to? It'd be people I don't want to really talk to right away, I guess I'd just give them my email. Kind of like, you're not serious. If you give them your number they might actually call you, and you never know, right? And it's an unknown number and you pick it up and then, “Hey what's going on?” and ah, “Damn!” People I guess I'm not really kind of looking forward to, I don't want to have
any future with. I don't want to get really personal or anything, I'd avoid giving my number.

And professors, I don't care. I give them my number anyway because they never call you. Some professors actually do ask for your number in class. I don't give it though. Not a big deal for them.

These two samples from the interviews offer some explanation for the low number of young women and men who use the mobile phone in initial interactions with new people. At several points in the dialogues and in similar terms both the female and male participants indicated that their mobile phone number was a valuable commodity. They used terms such as *personal, familiar, and ease of contact* to describe why they use their mobiles as a general contact. When asked about who they would not give their mobile phone number to, words like *serious, strong, and future* were used to describe the kinds of relationships they consider relevant to mobile phone communications and words such as *random, stranger, and no interest* when referring to persons to whom they would not give their mobile phone number.

Within Earl's responses are a rationale for the survey results that show that young men were initially more willing than young women to use their mobile phone numbers to meet new people. Earl stated that his decision about whether or not to give out his mobile number was in- part influenced by whether the new acquaintance was male or female. In the interview, he revealed that there is an unstated message that accompanies the giving of a mobile number, that is, an interest in a future relationship and especially if the interaction involves a member of the opposite sex. There are some complex processes at
play in this observation, and it suggests that the very personal nature of the mobile phone imbues this technology with socio-cultural meaning correlated to intimacy; thus, the giving of a mobile phone number is symbolic of a level of interest that in Canadian urban culture is normally not revealed in the first interaction. An implication of using mobile phones in personal networks for young people is that other media, such as email and Facebook, are perceived to be more distant and are therefore considered to be more appropriate for early exchanges with new acquaintances.

It is also likely that in times of transition, such as during the first year at university, controlling non-verbal communication on intent is an important element to managing the presentation of self within the interaction. While the data in this study does not specifically offer the opportunity to compare participants' communicative behaviours in the first semester to pre-university behaviours, I speculate that in the first semester young men are slightly more open to the idea of relaxing the rules of mobile phone number sharing during events such as Frosh Week because they do not expect that these numbers will be used right away. After experiencing some level of surprise from new acquaintances who do call their number, in the second semester, young men return to pre-university reticence in sharing their mobile numbers. Young women, with the additional social burdens of propriety at stake, are more likely to hold pre-university behaviour constant. While this conjecture appears plausible, it should be tested in future research.

6.2.5. Summing Up

To summarize this section, the survey data from November 2007 and March 2008 provide a sound basis from which patterns in mobile phone interactions can be observed. From these patterns a general portraiture of Millenial Torontonians can be constructed
from empirical evidence: This is something that has not yet been presented in any literature to date. As a summary, some key messages about the role of the mobile phone in supporting young people in their transition through the first year at university are concisely presented. This includes when young Torontonians receive their first mobile, who they text and talk to, how often they do so, when they use the mobile phone and what devices it has replaced in their lives to make it the leading form of personal media for 17-25 year olds.

While the summary is useful and advances our understanding of information practices for this population vis-a-vis the mobile phone, when supplemented with the interview data, the portrait morphs into a more complex image. From this complexity, different roles emerge for the mobile phone among students who commute versus on-campus residents. The mobile phone becomes a valuable ally in maintaining local, pre-university ties but at the same time a barrier to the development of new co-present relationships. For international students, the mobile phone is not as useful in maintaining geographically distant ties as it is for local relations. This observation is introduced here but will be further developed in the following sections.

In addition, understanding the implications of media in social networks includes considering the relationship between information practices and gender. In the literature and in the media, gender differences often become the focus, resulting in a reinforcement of historically developed stereotypes of men and women. With the dawn of social media and the wide-spread adoption of mobile communication technologies, there is growing evidence that there may be many more similarities in the information practices of young
women and men — findings as important as the differences between the two genders that we have come to hear repeatedly in the media and in the wider society.

This study of mobile phone use in youth social networks shows that both sexes use mobile phones for similar reasons including coordinating face-to-face meetings, concerns for personal safety and maintaining existing relationships. We observed differences in the way young men approached meeting new people using the mobile phone and by conducting a longitudinal study we saw that this use of the mobile phone by young men diminished in the second semester to match that of young women. The data show that in the case of frequency and reasons for mobile phone use, young people share many similarities in their information practices. When there are differences, we learn something unique about the mobile phone itself. In the case of analyzing the data by gender, we discover that the mobile phone number is imbued with notions of intent and intimacy that dictate how and in what circumstances it can be gifted.

In the following section, the first research question regarding the role that mobile phones play in maintaining and extending relationships in personal networks is answered through the data.

6.3. Youth Sociality and Mobile Phones: Maintaining and Extending Personal Networks

6.3.1. Introduction

This section provides insight on the role that mobile phones play in facilitating access to networks of social support for young people. The focus of this section is to examine the results of the surveys and interviews in response to Research Question 1: Is
there evidence that mobile phones are used to maintain and extend personal networks? Earlier in this chapter, general findings were presented (see subsection 2) with indications that mobile phones are used to stay connected to close friends and family in both semesters, but that the mobile played a lesser role in extending relationships to new acquaintances. In keeping with the core components of the conceptual framework presented in Chapter 3, this section challenges the data for additional evidence by testing three related hypotheses: (H1) Relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with more distant friends and family; (H2) The mobile phone is not used to initiate relationships with new acquaintance or strangers; and (H3) The mobile phone is used to mitigate feelings of loneliness during periods of social network changes.

6.3.2. Mobile Phones and Intimate Relationships

Hypothesis 1: Relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with more distant friends and family.

While friendship ties can be categorized in many ways, in this study, participants were given the following descriptions to differentiate relationship types and standardize responses: (1) Very close or intimate friends are people with whom you discuss emotional and family problems, share innermost thoughts and affections and/or people who you believe will be there for you when you need help (In network analysis, the term “Strong ties” is often used to describe this level of relationship.); (2) Somewhat close friends are people with whom your relationship is not “Very close” but people with whom you are
nevertheless quite familiar, more so than with acquaintances; (3) *Acquaintances* are persons whom one can discuss a single topic with in detail but who are not personally close to you; and (4) *Strangers* are persons with whom there is no previous relationship including face-to-face contact (In network analysis the term “Weak ties” is often used to describe these types of persons.).

**6.3.2.1. Depends on How Essential the Mobile is to the Individual**

In response to the survey question “How important is the mobile phone in helping you maintain social relationships,” approximately 73% of participants responded that it is *Important*, *Very important* or *Essential*. This cumulative percentage of the three categories stayed the same in semesters 1 and 2, indicating that the mobile phone remained a significant facilitator of access to maintaining social relationships throughout the academic year. A closer examination of the data shows that in the change from the first to second semester, the relative importance of the mobile phone for relationship management among the surveyed population increased in the essential and very important categories (Figure 6.11).

![Figure 6.11 Showing the Importance of the Mobile Phone in the Maintenance of Social Relationships](image_url)
6.3.2.2. Depends on How Long You've Used a Mobile

When the variable *maintain existing relationships* was crosstabulated with the *length of time* that the participant was a mobile phone user, the data show that more recent mobile users (less than 18 months) are less likely to view the mobile phone as playing a significant role in the maintenance of relationships than are veteran users of over 18 months (see Table 6.12). Chi-square results indicate a statistically significant relationship between where for both maintain existing relationships and coordinate meetings with length of time using the mobile phone. The propensity to use the mobile phone to maintain relationships increased the longer the participant used a mobile phone.

<table>
<thead>
<tr>
<th>Maintain an existing relationship</th>
<th>less than 6 months</th>
<th>6-11 months</th>
<th>12-17 months</th>
<th>18 months or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>52.9%</td>
<td>66.7%</td>
<td>72.7%</td>
<td>73.2%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Avoid loneliness</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>46</td>
<td>59</td>
</tr>
<tr>
<td>29.4%</td>
<td>33.3%</td>
<td>45.5%</td>
<td>36.2%</td>
<td></td>
<td>33.9%</td>
</tr>
<tr>
<td>Coordinate meetings</td>
<td>14</td>
<td>3</td>
<td>7</td>
<td>81</td>
<td>105</td>
</tr>
<tr>
<td>82.4%</td>
<td>33.3%</td>
<td>63.6%</td>
<td>63.8%</td>
<td></td>
<td>60.3%</td>
</tr>
</tbody>
</table>

* See Appendix I h for chi-square results and p-values.

**Table 6.12 Showing a Crosstabulation of Maintain Existing Relationships and Length of Time Using a Mobile Phone.**

In addition, Table 6.12 shows that novice users who had been using a mobile phone for less than six months found the most valuable uses of their mobile phones for more instrumental purposes such as facilitating the coordination of face-to-face meetings (82% of novice users versus 64% of veteran users). Taken together, these findings suggest that the more expressive uses of the mobile phone — such as maintaining relationships or avoiding loneliness — develop over time, while instrumental uses like coordinating meetings are the initial focus of new users. Although the sample size of users in the less than 18-months category was small (N=35), thereby necessitating further study.
to confirm these findings, the data suggest that expressive and instrumental uses of mobile phones are correlated with the amount of time an individual has used one. For personal networks, this implies that the greater the number of new mobile phone users in an egonet, the lower the propensity for their relationships to be maintained through mobile phone communication.

6.3.2.3. Depends on How Many Close Friends Use a Mobile

Table 6.13 shows a crosstabulation of the variable *Maintain existing relationships* with *Use of mobile phones by very close and somewhat close friends*. The chi-square for these results indicate that there is a statistically significant relationship between where maintaining existing relationships and having close friends who use mobile phones. Even in cases where most close friends use mobile phones but a few do not, the mobile phone is less likely to be used to maintain relationships.

![Table 6.13 Showing a Crosstabulation of Maintain Existing Relationships and Use of Mobile Phones by Close Friends.](image)

Chi-square with 3 degrees of freedom = 13.725, p = 0.003 (see Appendix I i).

6.3.3. Mobile Phones and Strangers

**Hypothesis 2:** The mobile phone is not used to initiate relationships with new acquaintances or strangers.

6.3.3.1. Depends on Who's Calling
Screening calls is the practice of using an indicator such as CallerID or a ring-tone to determine who is calling then making a decision on whether or not to answer a call based on that information. Screening calls is a practice that directly relates to H1 since it gives an indication of the relative use of the mobile phone within the four relationship types. In the first semester, the responses to the survey question, Which mobile calls are you more likely not to answer even if you were free to answer a call? showed that 22% of participants selected from a parent 10% from a sibling, 11% from a friend, 40% from an acquaintance and 73% from a number I do not recognize. If we conceptually equate unrecognized numbers to represent strangers, the data clearly show that participants are least likely to accept a call from a stranger and second least likely to answer calls from acquaintances.

By the second semester, participants increased the screening of acquaintances and unrecognized numbers by about 5 percentage points while holding other relationship categories such as parents and siblings constant but reducing screening of friends by about 6% points (See Figure 6.14).

![Figure 6.14: Showing Likelihood of Screening Calls Based on Who is Calling.](image-url)
The data presented above demonstrates that (a) participants use mobile phones to maintain very close and somewhat close relationships and (b) calls from acquaintances and strangers are more likely not to be answered; therefore, I conclude that H1 is supported by the data. Additional refinements that could be made to the hypothesis are that the longer participants use mobile phones and the greater the number of mobile phone users among their close friends in their social networks, the more likely the first-year undergraduates are to view mobile phones as valuable in maintaining their intimate relationships. The data on call screening practices also support H2 since contact from unknown or strange numbers are the most likely to go unanswered.

6.3.4. Using Sociograms to Test Hypotheses 1, 2 and 3

Thus far the evidence presented from the surveys offer support to H1 and H2 of Research Question 1. The following analyses of the network visualizations developed during the interviews also offer results pertinent to Research Question 1, particularly hypothesis 3, which posits that the mobile phone is used to mitigate feelings of loneliness during periods of social network changes.

Of the first-year undergraduates surveyed in semester 1 (N=173) and again in semester 2 (N=153), 20-participants were selected for in-depth interviews. During the interviews, sociograms — or ego-centred network diagrams — were constructed representing a visualization of each interviewee's personal network. By combining data from the first two surveys to the interview data, a longitudinal view of the personal networks was compiled to produce a way to present the evolution of personal networks and in particular the role of the mobile phone in the network.
The results of analyzing the sociograms for three representative participants are presented below. Kerri (#79), Brian (#54) and Cassie (#56) were selected for their comparative diversity and at the same time for their representability of the broader group interviewed. Kerri is a female student at the University of Toronto who was born and raised in the United States. Like most of the international students surveyed, Kerri is an on-campus resident and used a mobile phone before coming to Canada. Brian is male and attends Ryerson University. He lives in off-campus student housing located about 50 km from downtown Toronto and commutes on the days he must attend first-year classes. Cassie is female and lives at home with her parents and brother. She commutes about 25 km daily to attend classes at Ryerson University. Each network analysis is presented in turn focusing on the three hypotheses derived from Research Question number one.

6.3.4.1. Analyzing Kerri’s Ego-net

Kerri is a Canadian-born, Michigan-raised, first-year Faculty of Arts student at the St. George campus of the University of Toronto. She is close to her family that includes her mother, father, twin sister, elder brother and younger sister. Kerri opted to do her undergraduate studies in Toronto while the rest of her immediate family reside in the US, and she considers herself an international student. For her first-year, Kerri lived in an on-campus residence during the term and returned home to Michigan for the Christmas and summer breaks. In her experience which dates back to grade 9, having a mobile phone makes staying connected and close to friends and family a lot easier. While she does not describe the mobile phone as being “a part of her,” because of the added
convenience it affords, she carries it with her all the time, and it is on her bedside table when she goes to sleep at night.

To maintain her relationships both in the US and in Canada, Kerri decided to get two mobile phones: one on contract for Canada — which she keeps active when she is back in the US — and a prepaid mobile from the US. Her close friends and family use her US number to reach her while she is in Canada thus reducing the cost of calls to her. Although there is a landline at the residence, Kerri does not use it. Similarly, although she has a laptop with Internet access, she does not use Skype for long-distance telephone calls. She indicated that the reason for this is that her friends and family in the US were already used to reaching her on her US mobile number and changing it did not seem very convenient. Regarding Skype, she indicated that she wanted to be reached whenever people need to reach her and Skype would require that she be at residence, on the laptop.

Kerri uses her Facebook account often (more than once per day) to connect to high school and childhood friends as well as to check-in on the social lives of her siblings. In fact, in both the first and second semesters, she indicated that when she feels lonely she uses her Facebook account first to reach out to friends and family. In the first semester, she selected her mobile phone as her second choice technology after Facebook to mitigate feelings of loneliness, but by the second semester instant messaging and Facebook generated email overtook the mobile phone. Coincidently, in the first semester, Kerri reported that she did not go out or hang out with friends as much as she would have liked, and by the second semester she indicated that she went out enough to satisfy her needs.
After conducting analyses of the sociograms for the 30 international students in the study, Kerri's experiences can be used to illustrate a number of points of interest common to the international students (see Figure 6.15). First, the mobile phone is only somewhat successful in maintaining geographically distant relationships: in the first semester Kerri used her mobile phone (US) to regularly text and talk to her mother, twin sister, friends Natalie, Sara and Cat from residence and friend Mike who lives in the US. By the second semester, Kerri continued to expand her mobile phone use to stay connected to family members in the US but did not use the mobile to communicate with US-based friends; in fact, her relationship with Mike (based in the US) could not be sustained using the mobile phone and by the second semester the relationship deteriorated.
Figure 6.15: Showing Network Time-series of Participant #79, International Student

Legend:
- H = e-mail
- V = Skype
- I = instant messaging
- F = face-to-face communication
- ☠ = not mobile phone

Social Network Evolution - Kerri #79
(2) In the second semester Kerri relied on Facebook to maintain a passive connection to her high-school friends and fell into a rhythm of twice-weekly communication with all of her family members on the US mobile phone. In the meantime, she started meeting more people in residence and joined a sorority where she expanded her network of friends mainly through face-to-face interactions. Here the mobile phone played a facilitative role in coordinating meetings.

(3) In our interview in September, one year after starting university, Kerri admitted that her US-mobile phone strategy did help her overcome feelings of loneliness in the first semester by keeping her close to her family, but as a consequence she may have been focusing too much on her existing relationships and not trying hard enough to connect to those physically around her. In other words, by using the mobile phone to offer support when feeling lonely, Kerry gave a greater priority to her geographically distant family over her present university peers. By the second semester, when Kerri made more friends through joining a sorority and from residence events, she reduced her mobile phone interactions with family and friends in the US and used Facebook to remain connected to those further away. This was a pattern that repeated with the international students; initially the mobile phone was used in an attempt to maintain familiar, pre-university interactions, but cost, time-zone differences and lack of shared experiences led to a growing apart and a subsequent reduction in the use of the mobile phone to call those geographically further away.

Although there is evidence that intimate relationships are more persistent over geographical distances than are somewhat close ties, particularly when feelings of loneliness are high in the first semester, using the mobile phone could not sustain
relationships strained by physical distance. The data from international students who live on-campus offer support for hypothesis 1: relative to use within intimate relationships, the mobile phone is used less frequently to maintain relationships with more emotionally distant friends and family. From the data, I would add that physical distance makes this hypothesis even more virulent. There is also partial support for hypothesis 2: the mobile phone is not used to initiate relationships with new acquaintances. From the data, the mobile phone was not used as often to extend relationships, since for international students face-to-face interactions with residence friends proved more successful at developing a broader network over the year. Finally, there was support for hypothesis 3: the mobile phone was used to mitigate feelings of loneliness during periods of social network changes. The nuances to this hypothesis are that (a) this was mainly true in the first semester when feelings of loneliness were heightened and (b) a consequence of using the mobile phone to mitigate loneliness may be a slower expansion of the friendship network in the first semester at university. Living on-campus in residence reduces this effect for international students however it should factor more significantly for commuters.

6.3.4.2. Analyzing Brian's Ego-net

Brian is a 19-year-old Information Technology student at Ryerson University. He lives in Hamilton, Ontario in off-campus student housing and shares the accomodation with 5 other students who are all female. As a student who transferred in the first semester from McMaster University (in Hamilton) to Ryerson University, he offers an interesting case for observing the evolution of a social network with two transitions in the
first year. Apart from being a commuter student, developing relationships with his Ryerson peers is additionally challenged by his first-year internship that takes him away from the downtown Toronto campus at Ryerson several days per week.

Even though Brian is a self-described “late adopter” of the mobile phone (he first got one in Grade 10 at his father's insistence), he uses the mobile phone between 10 and 25 times per day including accessing the Internet. In the study, Brian was one of only a handful of first-years who use their mobile phones to access the internet. He visits sites such as “Maple Leaf Sports” and news networks and accesses his instant messaging and email accounts via the mobile. Since he always has his mobile phone with him, Brian enjoys being easily accessible to friends and family.

In analyzing the sociograms from Brian's first-year (see Figure 6.1), the following observations were made: (1) Apart from his parents, in the first semester, Brian mainly used his mobile phone to communicate with pre-university friends, including a high school friend (Steve) and his rugby buddies in Mississauga. He also increasingly communicated with someone he met and started dating from Frosh Week at McMaster. After four weeks at McMaster, Brian transferred to Ryerson University. Although he transferred to Ryerson, he remained in student residence in Hamilton so that many of his face-to-face interactions after class were with McMaster students he met in the first weeks at university and those he met through his housemates and girlfriend, who all attend McMaster. After transferring to Ryerson, he fell out of touch with his rugby friends from his hometown. Sam was increasingly busy with a new girlfriend, Ammar moved out of the country and Brian no longer used the mobile phone to communicate with them as evidenced in the March 2008 sociogram.
Figure 6.16 Showing Network Time-series of Participant #54, Off-campus Student Housing

[Diagram showing social network evolution with time points from Aug 2008 to Nov 2007]

Legend:
- Very close links
- Somewhat close links
- Somewhat close ties
- Very close ties

Social Network Evolution – Brian #54
In the first semester Brian indicated that he did not go out or hang out with friends as much as he would have liked to and that at he felt lonely at times. By summertime, this changed and Brian felt that he socialized enough to satisfy his needs. During this period a few things changed for Brian: he was going through the second transition from McMaster University to Ryerson, he was getting to know his McMaster housemates, he started an internship, he was developing a new relationship with his girlfriend and he established relationships with Ryerson classmates. In November, Brian indicated that he used his mobile phone most to coordinate meetings with his girlfriend and parents. By March, he was at Ryerson full-time and was making new friends with whom he communicated face-to-face and via Instant Messaging. He reported using his mobile phone most to maintain relationships during the second semester and by August, his housemates — whom he saw face-to-face daily — where among his closest friends. His sociograms show that over time, the people who Brian interacted with face-to-face the most became the people he felt closest to, and they were the ones with whom he used the mobile phone the most. Over this period, Brian's contact and relationship with his parents also changed: as his network of friends increased, his mobile phone interactions with his parents decreased and more of his social support came from friends than from his parents.

Using IM on his mobile phone became a strategy that Brian employed to keep his long distance costs lower as per-minute long-distance charges apply to voice calls from Hamilton to Mississauga or to Toronto, but IM was covered under a data package for unlimited usage. He used IM on his phone to contact his housemates, McMaster and Ryerson friends, while reserving voice calls for his parents.
In summary, in a similar manner to many commuters who live off-campus, Brian's social network evolved over the year to include more new friends developed through time spent in face-to-face contact. Like Kerri, Brian used the mobile phone to garner social support from family and hometown friends in the first semester when his perceived sense of loneliness was highest as he was meeting new people. For Brian this period coincided with a second transition to another university which may have intensified his feelings of loneliness, however staying connected to his girlfriend using the mobile phone appears to have played a part in mitigating these feelings. Thus, there is evidence of support for hypothesis 3. In keeping with the data from other off-campus residents, Brian did use the mobile phone to IM and call those with whom he had the closest relationships, which supports hypothesis 1.

Like Kerri, geographical separation strained personal relationships to an extent that using the mobile phone could not overcome even though the distances were in the tens of kilometres versus country borders. In terms of initiating relationships, while the first semester was challenging, Brian used day-to-day physical interactions supplemented with instant messaging chats to develop relationships. An important point is that Brian made a distinction between voice calls and IM although both services were facilitated by the mobile phone. He reported giving his IM contact information to new acquaintances versus his mobile phone number, suggesting a perceptual distinction between the two services that he managed over the same physical interface. This finding should inform future studies of mobile phone use within networks in North America since the increased availability of more data-friendly devices that converge services may not necessarily mean a dissolution of the psychological boundaries around the services.
Thus, there is partial support for hypothesis 2: the mobile phone is not used to initiate relationships with new acquaintances or strangers. The hypothesis is supported in Brian's case if the mobile phone services are voice calls and texts; however, for IM accessed over the mobile phone, the hypothesis is unsupported since Brian used his IM account to initiate new relationships.

6.3.4.3. Analyzing Cassie's Ego-net

Cassie is an 18-year-old Business student at Ryerson University. She lives in Mississauga with her parents and brother and commutes into downtown Toronto with her father every day to attend classes. She also works part-time in a bank branch in her hometown on weekends and on evenings when she has no classes. Like the majority of participants in this study, living off-campus with her parents presents an opportunity to continue to receive support from family during the transition to university but also a challenge, since Cassie spends less time with her university peers compared to students living in on-campus or off-campus student housing.

Cassie received her first mobile phone in Grade 9 when she “struck a deal” with her parents which stipulated that she use the mobile phone to stay in touch with them. She feels quite close to her parents and is in daily text or voice communication using the mobile. Cassie is an average user of the mobile compared to her peers in this study and uses the mobile phone between 10 and 25 times per day. She communicates with her high school friends mainly by text message when not in face-to-face contact with them. Some of her high school friends also work in the same bank branch so she sees them several times per week at work. An analysis of Cassie's sociograms brings forward a number of points regarding mobile phone use for students who live at home (see Figure 6.17).
Figure 6.17: Figure Showing Network Time-series of Participant #56, Commuter
(1) Cassie's heavy use of the mobile phone to stay in contact with her high school and work friends reflects the fact that her social network did not evolve to include university friends. In fact, between November 2007 and August 2008, Cassie's network did not evolve to include any new acquaintances from Ryerson University. Paradoxically, it is Cassie who will give her mobile phone number to new acquaintances who she meets for the first time and would like to meet again in the future, that is, less adverse to giving her mobile phone number to strangers than Kerri and Brian presented above. Cassie uses IM on her computer to stay-in-touch with friends made in other branches where she has previously worked; these online-only friends are at the periphery of her social network.

(2) By her account, not attending Frosh week was a mistake at the start of the term. Cassie reports feeling left out of events and inside jokes most of the time that she is on-campus. However, Cassie did not appear to have perceived her first semester as lonely. She reported that she believed her social life was rich enough to satisfy her needs in the first semester and felt that she went out or hung out more than she should have in the second semester. Cassie's free-time, that is time not in classes or at work, was spent at home with her family or with her high school friends — none of whom attend a university. She indicated that her mobile phone was very important to maintaining her existing relationships and this intensified to “essential” by the second semester.

(3) Cassie's social network is highly multiplexed: her friends are mainly derived from high school or/and work and many of the people in her network know each other. Their social activities also involve other people working at the bank so that new acquaintances generally came from friends of friends at work. This also means that
Cassie's network has a lower diversity of relationships than do the others presented in this section for the same reasons.

In summary, living at home and working part-time in her hometown conspire to create an environment where Cassie does not spend much time developing relationships at Ryerson University. Though she has classes with university colleagues, not allocating time to build these relationships face-to-face or through other means results in Cassie feeling out-of-sync with her university colleagues. While Cassie feels that her mobile phone is essential to maintain her existing relationships with her pre-university friends, she says that she is willing to give her mobile phone number to new acquaintances but the occasions to do so have not arisen. Cassie uses her mobile phone to stay connected to those to whom she feels very close and somewhat close. For other acquaintances who she does not see regularly, face-to-face media such as IM on the computer are used. On the positive side, Cassie reported feeling less lonely than Kerri and Brian above, however, she has not formed a community with her university peers and relies on her parents for help with assignments and projects and other university-related support.

In this section I explored the social network evolution of three participants who each represent a type of student based on their proximity to campus life: Kerri is an international student living in an on-campus residence, Brian lives off-campus with other students and Cassie lives at home with her parents and commutes to campus. These categories were selected from the data presented in the surveys as important differentiating factors in the way that relationships were maintained and developed, and the way strategies incorporating the mobile phone were executed to reduce the impact of loneliness during the transition.
Insights were acquired from an examination of the data in response to Research Question 1 and corresponding hypotheses 1, 2 and 3. Generally, there are more similarities in the use of the mobile phone for sociality between the genders than between commuters and residents.

Mobile phones are used to maintain existing close relationships but provide an indirect platform from which to develop new relationships. Also, the role of the mobile phone changes throughout a transitional period reflecting the changes in the users' personal network. In the first semester, in all three scenarios, mobile phones are used to mitigate perceptions of loneliness and aloneness by providing a primary means to maintain existing close relationships. By using two mobile phones, the international student found a way to manage costs while attempting to remain accessible to pre-university friends and family. By increasingly using IM and email on the mobile phone, the off-campus commuter in student housing continued to access networks of social support while on the move. By focusing on maintaining and extending relationships at the workplace and at home, the student who continued to live with her parents found her mobile phone to be essential to her sociality.

In all three cases the three hypotheses related to Research Question 1 proved relevant in different ways. All three cases demonstrated support for hypothesis 1: Relative to intimate relationships, the mobile phone was used less frequently to maintain relationships with more peripheral network members while very close relationships proved to be the ones with the heaviest corresponding mobile phone use. The importance of the mobile phone to the user and the length of time the participant was a mobile phone user were other factors that contributed to how much a mobile phone was used to
maintain ties. Hypothesis 2 posited that the mobile phone was not used to extend relationships with new acquaintances. There was some support for this when screening practices and sociograms were analyzed; however there was some evidence that the exchange of mobile phone numbers are a way to signal interest in developing a relationship, even when the deepening of the relationship initially happens outside of mobile phone interaction. This was the area where gender also appears to be most significant, where mobile phone practices are embedded in socio-cultural expectations of young men and women.

Hypothesis 3 conjectured that the mobile phone would mitigate feelings of loneliness. There was support for this hypothesis, however each case introduced nuances to the hypothesis, and there is evidence that mobile phones mitigate experiences of loneliness but also hinder the ability to extend friendship networks.

Generally, the participants used mobile phones in different ways over the transitional year. The following three phases represent the ways in which the role of the mobile phone changed in response to social network changes:

Phase 1 - Hindering Personal Network Changes: In the first semester, mobile phones are used to mitigate perceptions of loneliness and aloneness by providing a primary means to maintain existing close relationships. Frequency of mobile phone calls and texts to very close and close friends and family increases, especially among friends with whom there has been a physical separation. Mobile phones create a virtual telecocoon (as coined by Habuchi) within which first-years feel socially secure — a world more intimate. If mobile phone numbers are used as the primary contact for a first-year, when meeting new people with whom there is an interest in developing a
relationship, the mobile phone number is used as a symbol or token to indicate an intent to communicate. In most cases however, the new relationship is developed (or not) via another medium such as face-to-face, Instant Messenger or Facebook and only moves to the mobile phone after trust and reciprocity is established.

Phase 2 - Reflecting Personal Network Changes: By the second semester there are changes in the personal networks of the first-years and the persons most frequently communicated with by the mobile phone reflect the new core group of social support. Many high-school friends, previously contacted using the mobile phone, are now contacted using other media — for example Facebook, IM, or Skype. The mobile phone is used to maintain very close relationships and further develop new relationships started since university. There is a very close correlation between face-to-face interaction and mobile phone use.

Phase 3 - Supports Personal Network Changes: By the summer following the first year, many participants used the mobile phone to re-establish frequent connections to high-school friends since many return to their hometowns and are in more frequent face-to-face encounters with friends they have not seen for many months. Mobile phones support the re-intensification of these relationships, and new friends from university are maintained using Facebook/IM and Skype except for new intimate relationships which continue to be maintained via the mobile phone.

Loneliness in the first semester appears to trigger specific kinds of mobile phone practices including the intensification of use of the mobile to maintain existing relationships. This use of the mobile phone to mitigate feelings of loneliness by increasing personal network cohesion among very close and somewhat close
relationships is an outcome of using the mobile as a primary vehicle to maintain pre-university relationships. This is discussed more fully in Chapter 7.

6.4. Mobile Phone Affordances and Ritual Practices

6.4.1. Introduction

This section describes the findings related to Research Question 2, What information practices are demonstrated when mobile phones are used by youth within the transitional first year? In this study, information practices are regarded as a specific form of social practice in which people are actively engaged in the social context of which they are a part. Investigating information practices covers a number of activities such as purposive and serendipitous information seeking, information use that is materially bounded and communicative activities involving the sharing of information (Savolainen, 2007, p. 121). Information researchers agree that these practices cannot be studied in isolation but must be viewed as embedded in the everyday social and cultural contexts that they support (Caïdi, 2004; Caïdi and Allard, 2005; Johannisson and Sundin, 2007; Byström and Järvelin, 1995; Talja and Hansen, 2006).

Mobile phone information practices of first-year’s are embedded in the complex tasks of (a) establishing a young-adult social identity that is separate but related to the identity performed and understood within the parental home and, (b) accepting greater responsibility for the social consequences of choices made within the more unstructured environment of the university compared to that of the high-school. Both cases involve the daily negotiation of autonomy and control by the young adult during a transitional time in their lives. In this study I propose that the constitutively entangled role of the mobile
phone may be understood by considering the functionality of the mobile phone employed (i.e. mobile phone social affordances) and the everyday practices enacted (i.e. rituals) by first-years during this transition.

In this section, the findings are used to test hypothesis 4 (H4): the mobile phone is used to construct order in the daily lives of first year undergraduates by controlling communication flows. In addition, using the findings, I test the fifth hypothesis (H5): some information practices involving the mobile phone have become ritualized for young people.

6.4.2. Mobile Phone Social Affordances: Order and Autonomy

In the field of Human-Computer Interaction, Donald Norman (1988) applied the term social affordance to technological objects describing the property in which the characteristics of an interface influences its function. In his refinement of the term, Norman suggested that it is not the intrinsic nature of the technology that causes a user to take certain actions, but that the affordances are relational and actions taken would be influenced by the user's past experiences as well. Wellman et al (2003) described the social affordances of the Internet as the possibilities and constraints of how the Internet can influence everyday life and illustrated properties such as broader bandwidth, always being connected (broadband) and personalization (of email etc.) as some of the Internet's social affordances.

In this section, I present findings on two mobile phone social affordances: Caller Identification (CallerID) and Pocket-Sized. While the data from this study offer several other examples of mobile phone social affordances such as Portable, Multimodal,
Personalizable and Multifunctional, I have selected Call Screening and Pocket-sized in the interest of cogency and also because they were referenced by interview participants more explicitly than others.

In this study, I use social affordances in the sense that Norman implies — as a way to demonstrate the constitutive entangled nature of mobile phone information practices.

**Call Screening**

Social Affordance = CallerID; Information Practice = Call Screening

Call screening is described by the telecommunications provider Bell Canada as a way to "take control and only take the calls you want."\(^{23}\)

The practice of call screening involves receiving an alert of an incoming call, evaluating the characteristics of the call and deciding whether or not to answer the call. CallerID is a service offered by all of the major mobile phone service providers. With the CallerID service information about the caller is sent to the mobile phone of the receiver by the service provider along with an alert of the incoming call. This information includes either the telephone number or the registered name of the caller and informs the receiver if the caller has blocked the display of this information to the receiver. The receiver has three potential lines of action when a call is received: to answer, ignore the call or terminate the incoming call. In the latter two cases the receiver chooses not to enter into a conversation with the caller at that time. To ignore the call, the receiver either leaves the alert to continue uninterrupted until a time limit on the alert is reached or selects an option to stop the alert and lets the call attempt continue until a time limit is

\(^{23}\)Source: Bell Canada webpage http://www.bell.ca/support/PrsCSrvVoip_Dv_FeaCallScreen.page#, last viewed May 28, 2009.
reached. Ignoring the call means that the caller does not know whether or not the receiver was aware of the incoming call (for example the phone could be out of the receivers reach). In the case of terminating the alert, the receiver selects an option to stop the alert and the caller is made aware that the receiver actively took this action.

A few points concerning the mobile phone system design are worth noting at this point. At the time of this study, the user was able to manage the presentation of incoming call alerts for most mobile phones available. The alert could be a ringtone, flashing light vibration or combination of the three, and the receiver is able to adjust and customize this to meet a set of preferences. For example, the mobile phone may be set to flash a light for all incoming calls except for those of a romantic partner for whose calls the mobile phone is set to play a selected song. Further, these settings are categorized into overall modes such as *silent, loud, normal, etc*. Thus, on entering a classroom, a student could change modes for example from *normal* to *silent* which would keep calls coming in but changes the visibility and audibility of the device to co-present others.

While there are few explicit rules governing how incoming call alert settings should be handled in public spaces (exceptions are hospitals, theatres or aircraft where signage or other messaging requests non-use), there is some degree of regulatory pressure from co-present others measured in frowns and body language about the appropriateness of an audible alert within a given context. Generally, each receiver retains the power to control how this is managed across the various contexts within which he participates. No other portable communication device is associated with this level of receiver-managed control of an incoming alert.
There is also a time pressure exerted by the device when an incoming call alert is triggered. From experience, the receiver learns that the choice on what to do with an incoming call must be made within about 25-seconds. After this time the call is automatically handled by the device or service provider on behalf of the receiver. Even more choices are presented at this point, for example if the receiver subscribes to a voicemail system, the call proceeds that way, if not the service provider will supply a recorded instruction for the receiver, or the call is forwarded to another device (e.g. a landline) for further treatment. The receiver and caller are both aware that there is a time constraint involved with the incoming call. The receiver has to work within this window of time to get to the device and make a decision on what to do with the call. Again, no other communication device works quite in this way. For example, with a landline, the fixed environment and the mostly closed set of people in that environment establish norms and expectations on how the receiver may handle the call. If at home, the norms and practices of those typically in the household dictate, for example, whomever is nearest will attend to the ringing telephone within a few seconds, or a decision can be collectively made that no one will answer the call because it is dinnertime. With the mobile phone, since the device belongs to an individual and that person is moving through different environments shared with different co-present others, the onus is on the individual to make the 25-second decision. I recall several instances when I have shared time in a public place with a stranger who hears his phone ringing and makes a show of being surprised or annoyed to co-present people as he performs his 25-second decision process. I have also seen co-present people offer sympathetic or exasperated looks to the
receiver as he scrambles within a pocket to end the escalating and communal torture of
the non-answered mobile phone.

In the example above I describe the layers of complexity that the incoming call
presents to the receiver. Call screening, as an information practice, takes place as a step
within this performance and CallerID as the mobile phone affordance is the trigger for a
decision.

When asked the question, Do you screen your mobile calls? 73% of participants
answered yes in November 2007 compared to 76% in March 2008. This suggests that
over the transitional first-year mobile phone call screening remained consistently high
across the group, increasing only slightly over the study period.

When asked how participants screened calls (selecting all that applied), CallerID
was universally selected over other methods such as listening to a ringtone. The use of
CallerID to screen calls was also consistently high over both semesters (see Figure 6.18).

![Figure 6.18 Showing Responses to Question on How Calls are Screened]
In a previous section I described findings on screening calls of strangers. From that data participants also indicated that screening is not conducted solely based on the closeness of the caller to the receiver as even persons with whom the receiver has a very close or intimate relationship may be screened.

The frequency with which participants screened calls showed some change over time. In November 2007, just over half of the participants indicated that they screened every incoming call while about one-quarter almost never screened calls. When compared to March 2008, we see more participants increasing the practice of always screening (60%) while the number of those who almost never screen calls fell to about 16% (See Figure 6.19).

![Figure 6.19: Showing Responses to Question on How Often Calls are Screened](image)

When this information practice was examined for correlations, two significant tests are worth noting: gender and availability of a landline in the residence. Regarding gender, there is a strong positive correlation between gender and call screening (using
Pearson, significance 2-tailed test), see Table 6.20. Female participants are more likely to screen calls than males. This propensity increased from November 2007 to March 2008.

<table>
<thead>
<tr>
<th>Do you screen your mobile phone calls (i.e. do you decide not to answer an incoming call)?</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6.20 Showing Correlation between Gender and Call Screening - Semester 2

The second significant correlation indicates that participants with a landline in their place of residence are inversely correlated to call screening on their mobile phones; that is, the greater the likelihood of having a landline available, the less likely the participant was to screen mobile phone calls and vice-versa (see Table 6.21). Again, this propensity increased from November 2007 to March 2008.
I conducted an analysis of the interview responses to see if participants offered any explanations for these correlations. In the interviews, I asked first-years the following question: When your phone rings or vibrates or flashes (please indicate which is relevant), in most cases, what are the steps that you take when receiving an incoming call? The following are five excerpts from the interview responses that provide some insight into the correlations noted above.

**Interview 1** - Jessica is an 18 year-old female and lives on-campus in a student residence without a landline.

Jessica: My phone is usually set to ring. When it rings I go as quickly as possible to get it. I look at it to see who's calling although I always answer. Once I screened somebody and felt so guilty afterwards that I called them right back. I'm not like that. I'm a guilty screener.
**Interview 2** - Brian is a 19 year-old male who attends Ryerson University and has access to a landline at the off-campus student residence where he lives.

Brian: Mine vibrates first then rings. If it did, as it vibrates, I'd pick up and then look at it and then if it's a text or not I'd either pick up or respond. If I'm walking outside, I'll feel the vibration, it'll ring, and I'll take it out and look at it first, right?

*Interviewer:* So if you're in a meeting with a professor, what do you do?

Brian: Oh, it's a natural thing, in class, too, I always put it on vibrate. I don't really understand why some students have their phone go off. I don't really know how, 'cause I automatically, just naturally, just always go to vibrate, always. I don't know unless, I don't know if they're creating attention or what they do. I really don't understand how they forget, unless they never use their phone. But then people wouldn't call you in class, right? I always just naturally [put it on vibrate].

*Interviewer:* It's a habit for you? Second nature?

Brian: Yeah, exactly.

*Interviewer:* Do you typically answer a call from a caller you don't recognize?

Brian: Yeah. This morning someone called and I didn't recognize the number and I just ignored it. Cause if it's important they'll leave a voicemail, right?

**Interview 3** - Will is a 20 year-old male and has access to a landline.

Will: Well, so, it's in my pocket, I feel it ringing [it's on vibrate normally], I grab it out, take a look at who's calling, and I'll answer it. I usually, no matter who's calling, I answer.
Interviewer: That was my next question - even if it's a number you don't recognize?

Will: Yeah, usually. I'll just pick it up to ask what it's about, anyway. You know how people do those courtesy calls? I'll save those numbers so when they call again, if it's a frequent caller, I'll hang up on them. Otherwise I'll usually pick up.

Interview 4 - Ella is a 20 year-old female and has access to a landline.

Ella: So now it's on ringer, it's very very loud because I don't hear it. And then it's actually kind of embarrassing when it does, like if its sitting on a table and it goes off and people 3 rooms away can hear it (laughing), and it's set to the Flight of the Bumble-bee [a ring tone] so it's really obnoxious so I always try to answer as quickly as possible. But then if I am at work or something I leave it on but turn it to silent, because that way I can tell if someone calls but doesn't leave a message I can see from the missed call log.

Interviewer: When your phone rings what are the steps you take, talk me through what happens?

Ella: Well, when I go through my bag to find it as the Flight of the Bumble-bee gets louder and faster and faster, I blush as people are laughing at me and I have it set up (its a flip phone), I see who it is, then I press talk because I like to know who I am talking to, from CallerID.
**Interview 5** - Naomi is a 17 year-old female who has access to a landline.

Naomi: It vibrates... I flip it open... Who's calling? Before I didn't have CallerID. I made sure I had CallerID.

*Interviewer: When was this before?*

Naomi: When I first got my plan in December, it didn't have CallerID for one week, I couldn't stand it, so I got it after a week. So I flip it, who's calling? Depending on who's calling, is it important or not? Am I free right now?

*Interviewer: When you flip it open is the call answered?*

Naomi: No, I changed that setting, cause it's a slide, right? So if I don't want to talk to them I'll Silent it so it'll hit my mailbox. If I want I'll pick it up, if it's important I'll pick it up, "Hi, what's up".

**Interview 6** - Yuri is a 26 year-old male who has access to a landline.

Yuri: My phone is always on vibrate. If I'm not in a meeting or in class or anything I'll look to see whose calling, I'll screen the call. If its somebody I know I'll be on the phone with for a while, and I don't have the time I leave it and let it go to voicemail. If it's somebody I haven't spoken to in a long time I'll answer it regardless.

From the interviews, some points are raised that warrant discussion: (1) CallerID is looked at not just for screening the call but also in order to prepare the receiver for the conversation. This was evident in the comments of male and female participants,
regardless of whether or not they ignored many calls (i.e. the “deferers”) or always answered their mobile phone (i.e. the “guilty screeners”); participants generally consult with CallerID as part of the choice-making process. This demonstrates that even in the seconds before answering, the receiver uses CallerID as an information source to gain some control within the context of the conversation from the outset. Participants used CallerID to reconstruct some of the order temporarily disrupted by the incoming call.

(2) The incoming call alert is in itself a communicative interaction between the caller and the receiver that is mediated by the mobile phone. Yuri’s comment above illustrated that there are some callers who he would answer regardless of his time pressures or engagement in other activities so the information presented in CallerID factors greatly in the outcome. CallerID introduces the caller to the receiver mediating the interaction, so that if the call is rejected, that rejection comes indirectly to the caller. The mobile phone acts here like a fast-moving butler, taking details to the mistress of the house who then makes a decision in an instant. Like a butler, the mobile phone is the receiver's personal surveillance equipment relaying information regarding who is on the other side of the door and unless the caller is co-present with the receiver, he has less information about the context within which the call was received or rejected. It is noteworthy that Instant Messaging, another near-real time communication medium, has a status communication affordance built into its design. In this way, the sender has some information about the receiver's availability to engage in an interaction at any given time. At present, status is not presented by the mobile phone system for voice calls or text messages; thus, the power in this micro-interaction is with the receiver.
(3) Let me hear your mobile phone and I'll tell you who you are. The choices made in selecting an incoming call alert for different contexts are perceived to be a partial reflection of the individual herself. For this reason ringtones are used as a way to personalize a mobile phone, and this external sign becomes part of the individual's expression of identity. First-year participants had experiences of seeing others embarrassed and being embarrassed themselves by the perceived disruption that a ringing mobile phone causes. Many female participants described haste and speed in getting to the phone to stop the alert. Brian felt that people had no excuse for not changing a ringing alert to a quieter mode in a class and saw it as attention seeking behaviour. These perceptions of being judged by those co-present appear to drive the hurried attention to the device. Peer-disapproval during this phase of identity formation for the young-adult appears to weigh heavily in their assessment of something as small as how someone manages the incoming call settings on their mobile phone.

(4) In Jessica's excerpt we are presented with an example of the guilty screen. Jessica indicates that she consults CallerID for every incoming call but she believes that choosing not to answer a call from someone she knows, and likely someone who she has a close relationship with, breaches an internal code of ethics. Although the caller will not immediately be aware of the reason that his call was not answered, by screening the call and rejecting the caller Jessica felt that she had engaged in a deception. Implicit in this admission is the sense that the decision to not answer a call is inconsistent with her self-identity.

(5) Many of the first-years also factored how busy they were in the 25-second answer or not-to-answer decision. They almost always started answering the question
asked above with some parameters on the context making a decision depending on where they were, how important their engaged activity was or who was calling. It is worth mentioning that a reason not to take an incoming call was only ever mentioned if the co-present other person was perceived to be in a role of higher social status — for example, a professor, boss or bank manager, or if collectively the co-present group signaled that the call should not be answered. Among peers or close friends there was no perceived problem with answering an incoming call. Consider the following two quotes:

   Interviewer: What would be your response if my phone rang now and I picked it up and answered it?

   Chris: (18-year old male) Well, you're in a much higher stature than me. And you probably have more important calls to deal with than me, so I wouldn't mind.

   Interviewer: But what if it's one of your friends who you are with and they receive a call?

   Chris: Depends on the call. If it was somebody from university then, yeah, I'd go for it. But it depends on our situation too. If it we were just being social, then I wouldn't mind.

   Interviewer: And you don't mind if he picked up the call?

   Carl: No.

   Interviewer: What if you're with your friends and you get a call?

   Naomi: Then, let me see. I know, usually whenever we get a call, everybody's just like who is it. I'll flip the phone open and we'll all look at it and I'll look at their faces,
should I pick it up or not, and I'll look at their faces, cause they have an impact on who I talk to, too, eh. So, if we do our little thingy [participant smiles while shaking her the head], you know, forget it.

I asked interviewees whether they would answer a call during the interview with me and most said if it was important with a quick explanation to me they would; however, participants indicated that this did not necessarily mean that the caller was determined to be more important to them but is determined to be just as-important-as the person co-present. This is an important distinction as many interpretations of mobile phone use among co-present others presumes a social slight in favor of the caller. Young people report not feeling slighted when someone they are socializing with takes a call; in fact, many reported participating in the decision to take the call and the ensuing conversation, thereby expanding the co-present group with the virtual newcomer.

An examination of both the survey data and interview transcripts demonstrates some support for hypothesis 4: the mobile phone is used to construct order in the daily lives of first-year undergraduates by providing a process to control mobile communication flows. While I was not able to identify specific explanations for the correlations between call screening and gender or call screening and landline availability, these findings indicate that they warrant further study. By strategically using CallerID in efforts to manage voice-based communicative interactions, first-year undergraduates have enhanced perceptions of autonomy and control. In addition, peer judgements on how successfully or unsuccessfully a first-year manages his mobile phone are conflated with impressions about the type of person he is. This embeds mobile phone practices with
identity negotiation and performance at a sensitive developmental stage for a young adult.

**Always With**

Social Affordance = Pocket-sized; Information Practice = Always With

In this section I present findings related to hypothesis 5: information practices for young people have become ritualized. Ritual in this study is defined in two ways: (a) any practice or pattern of behavior regularly performed in a set manner (Random House Dictionary 2009) and, (b) shared codes of behavior that reduce barriers to social interaction (Ling 2008).

As participants answered interview questions regarding their call answering processes, it was apparent that they had developed a set way of executing this practice, that is, their call answering practices have become ritualized in the sense of definition (a) above. To aid their recall of the process in response to the interview questions, almost every person interviewed picked up their phone and performed a simulation of how they typically answered the phone. In Brian's interview excerpt from the previous section, he described his actions involving the mobile phone as "natural" — a common thread throughout the interviews. Generally, physical interaction with mobile phones are a routine part in the lives of first-year undergraduates.

Another example of an information practice that first-year students have ritualized is always having the mobile phone with them, regardless of location and without a specific or conscious intent to use it. The Japanese term for the mobile phone, keitai, is roughly translated as "something you carry with you" (Ito, 2005, p. 1) which perfectly describes this social affordance.
In the surveys, I asked participants to indicate activities that they engage in while using their mobile phones. They were instructed to select all that applied to them (see Figure 6.22). In response to the question, participants could select from a range of activities including individual and group activities, activities that covered spare and working time and activities that reflected use of the mobile phone while alone and with co-present others. The two most frequently selected activities involved using the mobile phone were while in motion, that is, walking and riding in a car/streetcar/bus. As a small, light-weight and pocket-sized device the mobile phone facilitates its own integration into other activities by its ease-of-carriage. The diminutive design of mobile phones on the market today means that they are easy to keep on the body promoting its ubiquity.

Figure 6.22 Showing Responses to Question: What Activities are You Engaged in While Using a Mobile Phone?
This social affordance is distinguished from portability which is a related social affordance of the mobile phone; however, portability is also a social affordance of a laptop computer. While a laptop is portable, its larger size makes it more difficult to frequently carry on the body, especially in settings where a person is in motion. The daily lives of first-years are motion-packed. Students are frequently moving for social and academic purposes: from residences to classes, classes to other classes, social spaces to study spaces, for services such as haircutting or campus extra-curricular activities. The small size of the mobile phone makes it the perfect communication device for staying connected to personal networks for the mobile lifestyle.

Figure 6.23 shows the variety of place-types where the mobile phone is frequently used by first-years. The diminutive property of the mobile phone influences increased use since it is always with the user.

![Graph showing types of locations where mobile phones are used]

**Figure 6.23: Figure Showing Responses to Question: Where Do You Use Your Mobile Phone?**

The following is a selection from my interview with Naomi who shared her point-of-view about how she uses her mobile phone in everyday situations. I chose
Naomi’s interview to explicate the always-with affordance because her responses typified those of her peers and also because she provided rich descriptions of her use of the mobile phone. Note the way that Naomi, like most participants interviewed, needed to make a conscious effort to think about her use of the mobile phone, suggesting a high degree of integration between the device and the activities of her life.

Interview - Naomi is a 17 year-old female who during the interview described her phone as "my little buddy."

*Interviewer*: Tell me about how you use the mobile phone. What do you with it?

*Earlier you said text, talk, you said music.*

Naomi: That's about it.

*Interviewer*: Photos?

Naomi: Photos yes and there's a notepad on it. Every time I watch TV and there's something that strikes my mind I will record it on a notepad.

*Interviewer*: You don't wear a watch, so...?

Naomi: Yeah, that's why it's always with me in the bathroom, you know, what time is it?

*Interviewer*: Do you use your landline at home?

Naomi: No, rarely. Only if they [friends] call at home and I'm home alone, then I'll use it.

*Interviewer*: Why?
Naomi: I don't know, it's just my cell phone's always there. Even if I'm out or if I'm allowed to use the home phone on the weekends, but then my cell phone is free. So I might as well just use my cell phone right? I've had the same number since Grade nine.

Interviewer: When do you carry your mobile phone with you?

Naomi: Everywhere. I'm serious when I go to bed, under my pillow; I wake up it's in my hand; I go to the bathroom, it's on the counter; I take a shower, it's there. I listen to it when I'm in the shower, it's on a shelf. I'm listening to music when I'm in the shower. It's everywhere with me.

As defined above, ritual interaction may also include shared practices that lower the initial obstacles of a face-to-face interaction. Historical examples of this form of ritual in Western cultures include shaking of hands; standard statements such as, “How are you/I'm fine”; and in the case of closer relationships, a pattern of cheek kissing or hugging. In this case, the initial content is not substantive but is phatic in nature — breaking-the-ice of the first moments in the interaction.

This form of ritual was also described in mobile phone use among first-year students in a unique way. During my first interviews with participants, I noticed that a voice call or text message exchange was mentioned as preceeding the face-to-face meeting of friends by a few minutes and that another voice call or text message exchange would follow the meeting after the friends departed. I added this voice/text message "sandwiching" of co-present time spent together as a line of inquiry in subsequent interviews and discovered this to be a typical pre and post-meeting ritual. When sharing this finding with a class of undergraduates in a guest lecture a few months later, a student
described the pre-meeting communication as "an appetizer before the main course" and the post-meeting communication as the "dessert."

The following are excerpts from my interviews with Pheobe and Christopher as they both exemplify the experiences of many other participants.

_Interviewer: Do you use your phone to communicate (voice or text) with someone before you meet them face-to-face and/or following the meeting?_

_Pheobe: Yeah, that's so funny, it's true, "I'm just calling to make sure we're on for today." or "Remind me to tell you about whatever." We meet, then after, “Hey thanks very much for today, that was great.” It’s more of a cell phone thing. I'd say I'm more prone to call before, meet and text after, that's sort of my habit._

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_Christopher: I call them before to just confirm if we're meeting and everything's going as per what we discussed before. And after, if there are questions lingering and work needs to be done, or work needs to be delegated, I'll call or text._

_Summing up, an examination of both the survey data and interview transcripts demonstrates support for hypothesis 5, that mobile information practices for young people have become ritualized. In both senses of the word ritual, the data presented in this section show evidence that first-year undergraduates have integrated the social affordances of the mobile phone into their communicative interaction processes; concomitantly, there is evidence that new mobile phone affordances are created to meet the needs of the first-years — for example, the practice of using mobile phone call logs as_
key data points for managing communicative interactions. An examination of information practices demonstrates that for this group of young people, the mobile phone has shaped and is being shaped by everyday ritualistic practice.

From an examination of mobile phone affordances and ritual practices, themes of order and autonomy emerged. CallerID gives the mobile phone call receiver an increased sense of social order and autonomy. The small size of the device also gives it's owner a sense that his social network is easily accessed wherever he is. The dimunitive device symbolizes a network in his pocket which is comforting and empowering during a time when social networks are in flux, creating a sense of personal network cohesion. The interaction ritual of pre- and post-meeting chats are partially enacted to regain control of the increasingly flexible nature of face-to-face meetings among young people since the mobile phone supports the fast communication of changes in plans this practice around confirming the face-to-face interaction has arisen. This sandwiching of the meeting with mobile communication also stretches the interaction beyond the physical meeting with the consequence that the performance ritual provides a head-start, lowering the interaction barriers before the face-to-face meeting takes place. As a result of their exchange, participants have something very recent to reference in the first moments of the physical meeting and through the post-chat, the interaction lingers on via the mobile phone after the participants have parted ways. All of these practices increase order and autonomy for the first-years.

Order and autonomy are themes that I revisit in Chapter 7 as I discuss the findings in more detail. The last section in this chapter focuses on the final component of the
conceptual framework which relates youth sociality to rituals in an exploration of Research Question 3.

6.5. Rituals Practices and Youth Sociality: Mobile Phone and Personal Network Changes

6.5.1. Introduction

This section highlights a relationship between youth sociality in the form of social support and information practices viewed through rituals. Specifically, this section examines the results of the surveys and interviews in response to Research Question 3: To what extent are mobile phones used to support and facilitate personal network changes for first-year undergraduates? From the Literature Review, I hypothesized that the greater the degrees of membership change in friendship networks, the more young people use mobile phones to access social support (H6). The following is a presentation of the results testing this hypothesis.

6.5.2. Mobile Phone: Reflecting Personal Network Changes

To test the H6, the data are presented in five steps:

(1) Survey data on degree of change to very close/intimate relationships in Semesters 1 and 2

(2) Survey data on ways in which very close/intimate relationships changed in the two semesters

(3) Survey data on frequency of mobile phone usage over the period

(4) A correlation between changes in the frequency of mobile phone use and relationship changes over the same period
(5) A crosstabulation of relationship changes and frequency of communication by relationship type.

If the hypothesis is correct, there should be a strong correlation between changes in relationships and mobile phone use since the hypothesis purports that increased mobile phone use should be related to the need for additional social support during the periods of network transitions.

(1) Survey data on degree of change to very close or intimate relationships over the first-year.

In November 2007, when asked whether any of their very close and/or romantic relationships had changed since starting university 6-8 weeks before, 47.8% responded that they did experience relationship changes. When re-surveyed in March 2008, slightly fewer participants (46.7%) responded that they had experienced relationship changes since the previous semester (See Figure 6.24).

![Figure 6.24 Showing Responses to Question on Relationship Change Since Arriving at the University](image-url)
From the consistency of this data across the two semesters I can surmise that for almost half of the respondents, the first and second semesters were equally challenging from a relationship perspective.

(2) Survey data on ways in which very close/intimate relationships changed in the two semesters.

For those who experienced changes in their very close relationships (although approximately 43% felt that they had more close friends in the first semester), almost one-quarter experienced a break-up with their girlfriend or boyfriend in that same period. Also, almost 40% of the participants believed that they had fewer close friends in the first semester and this number dropped slightly to 36.4% by second semester (see Figure 6.25). When combined with the fact that more participants believed that they had more close friends in the second semester, we can estimate by their self-assessment that their social networks were stabilizing.

Figure 6.25: Showing Responses to Question on Ways in Which Relationships were Changing Since Arriving at the University
(3) Frequency of mobile phone use over the period.

If the hypothesis is correct, based on the data on relationship changes presented above, participants should show higher usage of their mobile phones in the first semester compared with the second semester given the greater amount of relationship changes in semester 1. Figure 6.26 shows the frequencies of mobile phone use broken down by voice and text communication. From the data, there were more calls made and received and more text messages sent in the first semester when compared to the second semester.

![Figure 6.26 Showing Responses to Question on Frequency of Mobile Phone Communication Since Arriving at the University](image)

(4) While not indicating at a causal factor, support for the hypothesis would require a correlation between changes in the frequency of mobile phone use and relationship changes over the same period.

Conducting a Pearsons, 2-tailed correlation on the data, there were small but positive correlations between more calls made and more texts sent (see Tables 6.27 and 6.28).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 6.27 Showing Responses to Correlation between Frequency of Mobile Phone Calls Made and Relationship Changes

<table>
<thead>
<tr>
<th>Since arriving at the university this semester, have any of your very close and/or romantic relationships changed?</th>
<th>Since arriving at the university this semester, have any of your very close and/or romantic relationships changed?</th>
<th>More calls made</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.285**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>174</td>
<td>174</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6.28 Showing Responses to Correlation between Frequency of Mobile Phone Text Messages Sent and Relationship Changes

<table>
<thead>
<tr>
<th>Since arriving at the university this semester, have any of your very close and/or romantic relationships changed?</th>
<th>Since arriving at the university this semester, have any of your very close and/or romantic relationships changed?</th>
<th>More texts sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.293**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>174</td>
<td>174</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Less significant correlations were evidenced between relationship changes and more calls and texts received. This is worth noting since it suggests that in dealing with the changes in their personal networks, first-year undergraduates perceived that they
initiated outreach to their networks at a slightly greater rate that their network members reached out to them.

(5) Finally, I assess a crosstabulation of relationship changes and frequency of communication by relationship type. This raised a few interesting points. Firstly, participants ranked very close friends (including family) as the group with whom they had the greatest amount of communication using the mobile phone. However, participants who experienced changes with their very close relationships had a lower communication frequency with that group by only 3% points. This was corroborated with mobile phone billing records at the interview. Participants who experienced changes in their social networks also had lower mobile phone communication with every group (somewhat close friends, including family and acquaintances). Participants who experienced the most changes to their networks also showed the greatest increases in mobile phone communication with strangers. Given the data that one quarter of romantic partners did not survive the first semester, it is understandable that some of the first-years likely began dating “strangers,” and used their mobile phones to facilitate this.

Further, when asked in the first semester who participants went to for help and support, 56% selected very close friends and 35% selected parents. In the second semester, 55% selected very close friends and 37% selected their parents. This demonstrates that in the first semester when changes to relationships were greatest, more social support was sourced from friends than from family.

Based on the evolution of participant's social networks demonstrated at the start of this chapter, mobile phone use appears to have reflected the social network changes. When challenges where greater in the first semester, first-years reached out to their
remaining friends. Also, by the second semester, family became a slightly increased source of social support.

In summary, there is evidence that supports H6: the greater the degrees of membership change in friendship networks, the more young people use mobile phones to access social support. From the data, it appears that the first semester proved more challenging than the second: there were more changes to very close relationships, a significant portion of first-years experienced break-ups in the first semester and family was a close second-source of social support for first-year undergraduates. I have been careful not to suggest that the mobile phone is causing relationships to change. There is no proof for or against this in my data set. It is clear however, that the mobile phone reflects the changes taking place in the network.

Text messages sent was the most distinctive ritual practice employed by young undergraduates in times of network changes. Many interview participants discussed their dramatic increase in the use of text messaging after arriving at university. Many explained that the reduction in face-to-face contact with very close friends resulted in an increasing use of text messaging as it was a way to initiate a quasi-instantaneous exchange when information about what the receiver was doing was unknown— for example, they could be in a class so calling was not acceptable, but texting was.

The data did not directly show that mobile phones are used to support and facilitate personal network changes for first-years. What was demonstrated was that the mobile phone was used to reach out to trusted sources — family and friends — for social support during the first year.
The data also showed strong correlations between mobile phone use among trusted parties and reciprocity in communicative exchanges. In particular, an interesting practice around using mobile phone numbers to express an interest in initiating a relationship but using other media to develop a relationship was noted when looking at the data on network changes for this research question. This theme of trust and reciprocity will be discussed in detail in the following chapter.

In summary, in this chapter, the three research questions for this study were investigated through an application of the data from surveys to interviews to hypotheses. The conceptual framework was applied and tested using the data and there was strong support for Research Questions 1 and 2 and their related hypotheses 1, 2, 3, 4 and 5. There was some support for hypothesis 6 but this was not as strong as was anticipated at the outset of the study.

Throughout the chapter there was evidence of the constitutive entanglement of the mobile phone in the everyday information practices of first-year undergraduates. This was best viewed through an examination of mobile ritual practices that resulted from social affordances of the device (e.g. pre- and post-meeting communications, and the use of call logs to manage incoming calls) as well as demonstrations of social affordances of the mobile phone crafted from first-year undergraduate practices (e.g. CallerID for call screening and “always with” for fast access to personal networks).

Three main themes related to social cohesion arose from the findings: (1) mobile phone ritualistic practices increased the individual's perception of social cohesion by mitigating feelings of loneliness and aloneness through providing the means to maintain intimate relationships, (2) mobile phone ritualistic practices increased the individual's
perception of social cohesion by empowering the user to construct order during a time of transition and (3) mobile phone ritualistic practices increased the individual's perception of social cohesion by providing a means to increase the frequency of access to social support from trusted sources. These three themes — loneliness and aloneness, order and autonomy, and trust and reciprocity — are the main subjects of the next chapter.
Chapter 7- Discussion

And she is ‘gonna
Ring me up, on my Cellular Phone
So I know I’m not alone
In a world full of vampires
Come on darling, talk me down
On that Cellular Phone
Because I can’t get home

*Lyrics from “Cell Phone,” by Jack’s Mannequin (2008)*

7.1. Introduction

The purpose of this chapter is to conduct a deeper analysis on three themes that arose from the research findings. The three themes involve the mobile phone and a) Perceptions of Loneliness and Aloneness, b) Order and Autonomy and, c) Trust and Reciprocity.

These themes are each associated with social cohesion from different perspectives and will be considered within this context: being lonely as a flip-side of being engaged, seeking order and autonomy as coping strategies during separations, and reciprocity as a cohesion-building process.

The findings demonstrated the considerable extent to which the mobile phone has become integrated into the way first-year undergraduates engage with their social networks. The findings also provide examples of how the evolution of personal networks within relationships may be restricted by, supported by and reflective of ritualistic mobile phone practices. In this chapter I focus on each theme in turn to describe and interpret the theoretical and practical implications of the findings on a broader level.

Section 7.2 acknowledges findings on the heightened perceptions of support and security that first-years initially derive from using the mobile phone to connect with pre-
university networks in an effort to mitigate feelings of loneliness and aloneness. Here, past research on loneliness is revisited and consideration is given to the systemic forces underlying the impetus to engage with mobile phones to decrease feelings of loneliness.

Section 7.3 analyzes the finding that mobile phone ritualistic practices empower first-year undergraduates to construct order during a time of transition.

And the final section, Section 7.4, considers in more detail the catalytic role of the mobile phone in negotiating new relationships during a life-stage transition, particularly when trust and reciprocity are as yet unestablished.

7.2. Keeping it Together: The Role of Mobile Phones in Staving-off Loneliness

Transitions are often tricky and conflicted. On the one hand, there is excitement about a new experience that could involve testing out a new identity, a new place or a new language; on the other hand, there is the unknown that could involve fears about inadequacy, concerns about being misunderstood or fears of exclusion. Rite of passage transitions are particularly tricky and conflicted and in this case also include the transformation from the dependent child into a quasi-independent young adult. Looking forward into the unknown is an expectedly foreign landscape but looking backward reveals unexpected changes as well as identities and roles well established that are now in flux, and instructions on how to operate in this liminal space are unclear. This is a time when it is normal to experience feelings of loneliness.
7.2.1. Loneliness as a Subjective Experience

Loneliness is defined as a subjective experience and is not synonymous with objective social isolation. For example, people can be alone and not lonely or lonely in a crowd (Peplau & Perlman, 1982, p. 3). Emphasizing the cognitive processes at play, loneliness can be viewed as a perceived dissatisfaction with one’s social relationships and “…is the unpleasant experience that occurs when a person’s network of social relations is perceived as deficient in some important way, quantitatively or qualitatively,” (Peplau & Perlman, 1982, p. 4).

Cutrona (1982) conducted a longitudinal study of first-year UCLA students to analyze the causes of loneliness. At that time, she found that starting university involved a social reset, or a starting over. It was not possible for first-years to port their popularity or social standing from high school into the university environment (Cutrona, 1982, p. 291). This is especially the case if the student is attending university away from the childhood home: loneliness can be a serious problem among university students who are faced with the task of building a completely new set of social relationships. For many, it is the first time that they are living away from their parents, removed not only from the emotional support of their families but from the security provided by familiar family rituals.

Feeling lonely includes feeling out of tune with those around you and feeling excluded from what appears to be “normal” activity. Internally, the lonely individual is disengaged with co-present others; externally, interactions are missing mutually understood semiotics. In other words, the individual experiences the opposite of social cohesion. Pangs of loneliness are described as evolutionary equivalents to shooting pains
after touching a hot stove, reminding us that social disconnection is bad for physical and psychological well-being (Cacioppo & Patrick, 2008).

7.2.2. Technology and the Death of Solitude

Despite the viewpoint that loneliness is not generally associated with well-being, there are a host of voices decrying the loss of solitude in our current technosocial cities. Technologies, and especially mobile phones, are accused of taking away “not only our privacy and our concentration, but they also take away our ability to be alone” (Deresiewicz, 2009, p. 2). Solitude is often positioned by this camp as a valuable opportunity to experience trans-existential and spiritual self-renewal (Larson, Csikszentmihalyi & Graef, 1982; Suedfeld, 1982; Storr, 1989). They often refer to shaman, prophets and other wise-people tucked away, in pursuit of vision quests in deserts, forests or caves, and they despair the common sight of young people glued to their mobile phones who do not know what it is like to be alone.

This latter reflection was empirically proved to be true in this study. The findings presented in the previous chapter concurred with the results of a study of Norwegian teens that showed that frequency of mobile phone use covaried with perceptions of social inclusion among peers (Ling, 2005).

7.2.3. Mobile Phones and Loneliness

The data presented in Chapter 6 of this dissertation also showed that in the first semester, first-year undergraduates regularly used their mobile phones to connect with their pre-university friends and family when they felt lonely. The mobile phone was the
device of choice to stave-off encroaching loneliness with a quick text or voice call to a high-school friend or sibling. Mobile phone mediated interactions resulted in the maintenance of older networks at the expense of developing ties with new colleagues. Boredom was time ripe for killing with a mobile phone. Participants struggled with understanding the meaning of lonely and alone when they were always experiencing connected presence (Licoppe, 2004) and ambient accessibility (Ito, 2005) via the mobile phone. As one participant said to me in an interview, “text messages don’t have a beginning or end, they are just a stream that you go in and out of all day long.” Therefore, what does loneliness and aloneness mean when you are always swimming through the 800 MHz spectrum-band with friends?

Instead of attempting to assess what is lost or gained because of mobile phone use, I apply the lens of constitutive entanglement to ask, What are the drivers for first-year undergraduates to engage the mobile phone in mitigating feelings of loneliness thereby deferring interactions with new people? Guided by the concept of technosocial situations I can identify two systemic forces that contribute to this practice: insecurity in a modernized world and presentations of identity.

7.2.4. Telecocoons

When Habuchi (2005) analyzed data on Japanese mobile phone use, she considered theories of security and insecurity — major themes in Modernization Theory — as providing a basis for understanding mobile phone practices. Habuchi posits that prior to 1990, during the early stages of relationship development, trusted parties such as family or friends or trusted spaces such as churches or bars mediated encounters with
strangers. Today, new media — including mobile phones — perform a similar role but raise issues of anonymity. Unlike internet-based mediators such as chat interfaces where pseudonyms can be used to conceal user identities until trust is established the mobile phone is a distinctly personal mediator. A mobile phone number is a direct access to an individual and offers little protection of identity. In a risky world, each individual must exhibit caution when choosing whom to interact with, using which medium.

Also, for first-year undergraduates, mobile phone use is intricately tied to presentations of identity. Peer judgements of a lone female sitting on the steps outside a class every week are very different than if that female was texting or talking on her mobile phone. On her phone she is actively communicating to onlookers that she is not alone, that she has friends and that she is not a “lonely loser” as one participant termed it; thus, mobile phone practices of connecting with pre-university networks to mitigate loneliness, instead of sitting in solitude or initiating communication with a co-present stranger may be understood within the context of these forces.

The self-reinforcing outcome of using mobile phones to mitigate loneliness is an appreciation in the value of pre-existing relationships and an attempt to intensify that contact in the first semester. This intensification creates a “telecocoon” or “zone of intimacy” in which people can continuously maintain their relationships with others who they have already encountered without geography and time restrictions (Habuchi, 2005). Using mobile phones to maintain familiar relationships strengthens existing social ties and serves to maintain the cocoon of the existing community.

Loneliness is ubiquitous (Dumm, 2008) and so are mobile phones. Concerns of risk in modern society and an awareness of identity presentation in the first semester
entangles with the social affordances of the mobile phone to create the perfect storm for telecocoons, especially during transitions. The result is that while the mobile phone facilitates cohesion and access to existing sources of social support at a time when young adults are in need of it, the mobile also serves as a temporary barrier to extending social networks.

7.2.5. Implications: Coping mechanisms and little-boxes

These findings have implications for how this “always-on generation” will manage future life-stage transitions. Evidence of continuous access to social networks has broader implications on how coping mechanisms for being alone and disconnection are acquired in this generation. The data from this study cover one academic year and there is evidence that withdrawing into the telecocoon is an initial response to network turbulence as toward the middle and end of the academic year, social networks of first year undergraduates did show signs of expansion. Further study should revisit these students in subsequent years at university and assess more thoroughly whether or not the telecocoons are a temporary response to network destabilization.

The findings from this research do suggest that telecocooning is a feature for undergraduates in first-semester and that commuter students experience more difficulty in emerging from the tightly-bounded group to engage in relationships with their cohorts well after the first-semester. Balancing communicative attention among familial networks, high school friendship networks, part-time work networks and undergraduate networks requires selectivity and choices about which relationships should be managed and nurtured, and over which media.
The balancing act also involves recognition that different identities are presented in interactions with the different networks. In this way, most of the first-year undergraduates personified what Wellman (2003) calls networked individuals. The transitional experiences of first-year undergraduates may present an analytical microcosm for societal transformations. Undergraduates leave the relatively stable and place-centred social communities of their childhood homes and schools and armed with their mobile phones, undergo a transformation into networked individuals. Some are able to transition more quickly and nimbly than others. Are telecocoons, which are conceptually similar to Wellman’s *little-boxes* and Tönnies’ *Gesellschafts*, behavioural practices indicative of an intermediate stage in the transformation to networked individualism? And does this micro-demonstration of the telecocoon scale to societal transformations? These theoretical questions are not the subject of this study but can be considered in future analyses.

7.3. Bridging Gaps: Mobile Phone Practices of First-year University Students

In this discussion I analyze the finding that mobile phone ritualistic practices empower first-year undergraduates to construct order during a time of transition. Extending from the findings presented in Chapter 6, I use qualitative data gathered in the interviews to reinforce ideas on mobile phone use by first-year undergraduates to mitigate feelings of separation from kinship and friendship ties while transitioning to university life. I also draw on Victor Turner’s ideas on liminality and Georg Simmel’s bridge metaphor to consider the role that mobile phone supported ritualistic practices play in how first-year university students manage the transition from high school and the family
home. In particular, I analyze the way mobile phones are used to bridge social gaps in first-year undergraduate networks that are strained when students psychologically and/or geographically move further away from social and emotional supports provided by kin and high-school friends. This section concludes with the observation that ritualistic practices provide evidence of constitutive entanglement of the mobile phone with the cognitive processes of young people undergoing transition.

7.3.1. Liminality, Rituals and Bridges Involving the Mobile Phone

The following is a brief revisit of ideas presented in the Literature Review to discuss the way ritual practices are catalysts for the construction of order through Victor Turner’s articulation of *liminality* and Georg Simmel’s ideas on *social interaction* and how we conceptualize being together and cope with being apart from people in our lives. Both offer complementary perspectives on the processes that accompany the experience of transitioning to undergraduate student life, namely overcoming negative feelings when separated from friends and family. I close this section by concurring with Rich Ling that an examination of the everyday *rituals* performed by these young people and their mobile phones is an important way of exploring information practices. This use of ritual analysis brings the framework full-circle by acknowledging once again Turner’s work in the area of transitions and tribal rituals.
7.3.2. **Liminality: Being in the Margin during Transformations**

Turner’s work offers two transferable ideas that fit well with the social phenomena that I observe in my own study of mobile phone use among undergraduates in Toronto: *liminality* and *rituals*. Turner incorporates Arnold van Gennep’s ideas on liminality to describe the period in time in which a person in a given society undergoes socio-psychological change — for example, puberty, marriage and even death (Turner, 1967, p. 94). Turner posits that society’s secular definitions do not easily allow for the existence of “transitional beings” or “liminal persona” because these individuals are neither the previous nor the latter, neither completely outside of the previous state nor fully into the next (Turner, 1967, pp. 93-95). Van Gennep and Turner consider transitions (or passages) in three phases: separation, limen (or margin) and aggregation. Separation comprises symbolic behavior, signifying the detachment of the individual from an earlier fixed-point in the social structure (Turner, 1967, p. 94).

Separation for my research participants is represented by their departure from high school. This separation is marked by the rituals of a graduation ceremony, receipt of gifts from family members and social events among peers such as formal dances or proms.

It was this liminal phase, or process of becoming, that I focused on in this study because while mobile phone use is pervasive among young people in Toronto (Caron & Coronia, 2007; Castells, Fernandez-Ardevol, Qui, et al, 2007), it is during periods of relational stress, like starting university, that the role of the mobile phone may be more visible to users. Van Gennep and Turner both found the analysis of rituals during the
liminal phase to be the key in understanding how people cope with transitions. Richard Ling (2008) wrote about small-scale rituals, that is, two-person or dyad interactions and the mobile phone. He posits that the basic elements of a ritual are the mutual focus of a circle of participants and the engendering of a common mood (Ling, 2008, p. 83). Ling suggests that the mobile phone allows for the execution of rituals that in turn may either result in increased social solidarity of the dyad or inhibit social cohesion with persons outside of the dyad (Ling, 2008, pp. 83-85).

7.3.3. **Bridges: Connections During Transformation**

Over a century ago, Georg Simmel, considered one of Network Analysis’s earliest thinkers, wrote a short essay called *The Bridge and The Door*. The essay explored ideas on personal relationships from the perspectives of separation and connection. In it Simmel considers a bridge as an example of a physical artefact developed from a human desire to connect spaces, thereby connecting with others who are geographically separated. He writes, “the people who first built a path between two places performed one of the greatest human achievements…the will to connection had become a shaping of things” (Simmel, 1994, p. 6).

In the essay Simmel raises three important concepts. The first is that a bridge symbolizes the power of human will to make connections with others. In Simmel’s words, “…the bridge symbolizes the extension of our volitional sphere over space” (Simmel, 1994, p. 6). It is human agency that finds a way to forge relationships among

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24 As translated by Mark Ritter in 1994.
geographically separated points or persons, and it is agency that speaks to the choices that we are willing to make if the desire to be connected is strong. The second concept is that a bridge is a physical artefact whose purpose is to overcome an obstacle that separates people and places. Simmel deems the technological capability to develop a special device that eradicates the reason for separation and facilitate connections as a unique human achievement. The third point is that a bridge has aesthetic value as it is a visible path. For Simmel, the tangible visibility of a bridge makes the abstracted potential of connecting with someone more of a possibility through its physicality. In other words, a bridge is a physical and visible reminder that when we want to reach out to someone, we can.

Extending Simmel’s ideas to mobile phone mediated interaction, I conjecture that the mobile phone may be symbolic of a visible bridge that fuels the human will to overcome obstacles, maintain existing relationships and make new connections during transitions.

The findings discussed below refer to information practices that were consistent throughout participant’s entire first year at university. I expand on findings touched on in Chapter 6 to highlight three ritualistic practices performed during this period of transition. While these practices may take place outside of this first year, it is the intensity of change and the stress placed on relationships during the first-year that make these practices — those that otherwise fall into the broad realm of life as usual — particularly important to those involved.
Ritual #1: “Checking-in” – The Mobile Phone and Ritualized Parental Interactions

Over 77% of participants got their first mobile phone during high school (grade 9 or 10) so that by the time they enter university they consider themselves to be expert users of the device. The majority of undergraduates in my study received their mobile phones as a gift from parents or grandparents, but in most cases the idea of getting a mobile phone was discussed before receiving the gift. Also, having high school friends who already had mobile phones weighed heavily in the decision. During the interview, many remarked that the mobile phone was a gift with strings attached: mobile phones were given to the then high-schoolers to keep track of their whereabouts as they became more independent. The following interview excerpts sum this up elegantly:

Interview - Alexandra, 17, from a suburb of Toronto

Alexandra: [Getting a mobile phone] was kinda cool. Back then [in Grade 9], Oh, I have a cell phone, I don’t need to get a quarter to use the pay phone. But, it really does help you out. My mom’s very paranoid, very over-protective. If I was home five minutes late, she would flip-out. So the phone, she would call me, I’d pick up, she’d be like, “Where are you?” and then it would be OK.

Interviewer: And are you still maintaining that checking-in with her?

Alexandra: Very much so. I get on the subway, I get off and my mom’ll buzz. I’m serious.

Interviewer: How do you feel about checking-in with your mom?

Alexandra: It’s kind of a habit, it’s kind of very irritating because I get on the subway, after five minutes I’m off but she still expects me to call.
Interview - Danny, 18, International Student, from Beijing

Danny: [Getting a mobile phone] I guess it was mainly my parents just gave me one, a present I guess. I was more mobile in Grade 9, you know, I had things to do, so they needed an easier way to contact me, I guess. Now the only time that I actually use text messaging abroad is for my parents. If my Dad just wants to find out what I’m doing right now, he’ll text message me and I’ll text him back. If they need to know exactly what I’m doing or they have something urgent to let me know they text me.

Interview - Ella, 19, from Toronto

Ella: [Getting a mobile phone] It was actually a gift from my grandparents in Grade 10. I hadn’t given it much thought at that point. It was cool to receive it. Everyone was starting to get cell phones more and they just wanted to be the first people to give me one. I actually found it the other day, it is so old. It looks like a calculator, remote control kind of thing! [Calls with my mom] “…when are you picking me up, can you stop and pick this up on the way home, things like that.” Yeah it’s just checking-in, sure. Yeah, it’s like, “OK, you’re still there?” and “OK, I’m still here, I’ll check in a little bit later.”

Like most first-year undergraduates in the study, Alexandra, Danny and Ella indicate that their parents/grandparents gave them mobile phones when they were transitioning from middle school to high school. This suggests that young people’s first experiences with mobile phones are associated with liminality or transitions: experiences that precede university life. Receiving a mobile phone symbolizes the rite of passage into a more independent life-stage for the teenager, however, the mobile phone is also (at least initially) a visible path or bridge to the parent. It is a bridge that although perceived by the teenager as “irritating” is accepted as part of the condition of increased autonomy.
A second implication is that by the time these young people are transitioning to university they already participate in well-established ritualistic interactions with parents in the form of “checking-in” using mobile phones. Berg, Taylor and Harper (2003) consider “checking-in” via text and mobile voice messages as part of the gift-giving practices of teenagers. Gift-giving is described as the exchange of material objects that embody particular meanings and that are subject to obligations to give, receive and reciprocate as a demonstration of the social tie (Berg, Taylor and Harper, 2003: 434).

Thus, receiving the gift of the mobile phone from parents includes an obligation for teenagers to reciprocate with gifts of regular, checking-in exchanges with their parents toward the goal of maintaining the familial relationship when physically apart. By the time these young people are transitioning to university, this parental checking-in is ritualized interaction practiced in the hopes of engendering a common mood of closeness.

Ritual #2: “Always-on” – The Mobile Phone as Part of Me

Over 80% of participants reported that they do not turn their mobile phones off; in fact, when asked where they put their mobile phones once they have gone to bed (the human version of switching “off”), many of them report that the device is on and within arm’s length — either under the pillow, on a bedside table or on the floor next to the bed. Even if they are asleep, the potential to be woken up for a call or text message is acceptable, and in the case of romantic exchanges, even desired.

Caron and Caronia (2007) call Canadian youth between the ages of 17 and 22 the “on generation,” and state that “young people under twenty are the first generation to have known from infancy such a wide-ranging media landscape…new technologies have always been part of their framework of experience… and social relations” (p. 200). More
than half of the interview participants take this even further: they view their mobile phone as more than part of their media landscape and they feel that their mobile phone is a part of them. In this sense, they believe that if they are always “on” — that is, ready and able to communicate at all times, their phone should be as well. Consider the following excerpts from the interviews:

**Interview - Gerri, 18, from a suburb of Toronto**

Gerri: When I go to bed, the mobile phone is right beside me on the mattress. It wakes me up about every half hour.

*Interviewer: No straight night’s sleep?*

Gerri: No.

*Interviewer: So do you leave the ringer on or off?*

Gerri: It’s on vibrate because I wouldn’t wake up with the ringer but vibrate will shake my whole mattress. I’m pretty protective of it. If somebody takes [my mobile phone] away from me and tries to go through it, I feel it’s like my diary because I have text messages from everybody that they can read, and it really does tell a lot about me and my life. And when my friends goof off and start kicking it around — for a joke, ‘cause it’s old — I get offended! It’s like they’re hurting me! So I do feel that it is a part of me, like it’s constantly with me.

**Interview - Mike, 17, from a suburb of Toronto**

*Interviewer: When you go to sleep do you just switch it off?*
Mike: No, it’s on until it’s almost dead. Without it, it just doesn’t feel the same. It’s the actual phone that’s part of me, not the fact that I’m calling. Because something was wrong with my phone for a bit and I had to give it in for repair. That five weeks was really weird because I had to use a really old Motorola phone which was not really up to date with technology. But mine’s a little more modern, so I felt kind of lonely without it.

Keeping the mobile phone charged and always on are ritual practices for participants in my study. For Gerri, Mike and their peers, the mobile phone offered consistency during the transition to university. The mobile phone was one of the things that was constantly with them and housed within it the potential to instantly transport these “transitional-beings” from an unfamiliar environment into the hands of someone more familiar. Ito and Okabe (2005) term this potentiality ambient accessibility, that is “a shared virtual space that is generally available, not requiring the deliberate opening up of a channel of communication but based on the expectation that one is in ‘earshot’” (Ito and Okabe, 2005, p. 138). With the mobile phone always on, coping with the transition and the uncertainty of liminality was easier.

In addition, Simmel’s metaphor of a bridge may again be applied to the mobile phone. The mobile phone as the physical artefact, with an ability to overcome obstacles to stay connected to friends and family, becomes enmeshed with the user himself. From the perspective of the first-year, “If the bridge is a part of me, then in a sense I have the power to manage my relationships.” Again, I draw on Orlikowski’s concept constitutive entanglement to describe the integration of the technological artefact and the user (Orlikowski 2007). This entanglement is the foundation for the perception that there is an
always-on, virtual communicative space that participants move in and out of with their close friends and family.

*Ritual #3: “Who is it?” – The Mobile Phone and Communicative Choice*

The majority of young people in their first-year at university in Toronto screen their incoming calls (Nov 73%; Mar 76%). There is no difference whether the first-year is male or female. Of those that screened calls, over 60% of them screened every incoming call to their mobile phone. Consider the following excerpts from the interviews:

**Interview - Paul, 20, Toronto**

Paul: Take this morning someone called and I didn’t recognize the number and I just ignored it. Cause if it’s important they’ll leave a voicemail, right?

**Interview - Alexandra, 17, from a suburb of Toronto**

Alexandra: When I first got my plan in December, it didn’t have caller ID for one week; I couldn’t stand it, so I got it after a week. So I flip it [open], look to see who’s calling? Depending on who’s calling, is it important or not? Am I free right now?

**Interview - Gerri, 18, from a suburb of Toronto**

Gerri: About 60% of the time [I do not answer if I don’t recognize the number] because sometimes I think it’s somebody from work. But, some guys just don’t get the point. If it was important they’d leave me a voicemail. That’s my theory.

During the interview most participants had to stop and think about how they dealt with incoming calls. Several actually picked up their mobile phone and simulated the experience before answering the question, indicating that managing the incoming call is a ritual practice of first-years likely established well before entering university; however, in
the transition to university, over 75% of first-years for the first time begin to use their mobile phone number as their primary telephone contact with new acquaintances instead of offering the landline number previously associated with the family home. Thus, during the transition there are more new or unfamiliar callers to their mobile phone and this brings the practice to light.

Here we see the ritual practice of what Matsuda calls social selectivity (Matsuda, 2005) which is actively choosing who to communicate with and using the mobile phone’s caller identification (Caller ID) feature to manage incoming requests for interaction. The practice of screening calls suggests that the Simmelian bridge is not an open thoroughfare but that access is managed. Choice in communicative interaction is especially important with the mobile phone due to the synchronous nature of the voice call and the quasi-synchronous practice of text message exchanges. In addition, Ling (2008) finds that calling or texting a mobile phone is perceived as “a very concrete application for a person’s attention and by doing so we are inviting ourselves into their personal space” (Ling, 2008, p.169).

In offering a display of the caller’s number and/or name, Caller ID is an extension of the cognitive senses of young people that provides the information upon which a decision is made to accept or reject the invitation to communicate. Again, the mobile phone through this functionality engages and becomes entangled in the user’s cognitive processes so that device itself is not seen as a separate input to the ultimate decision but a constitutive part of it.
7.3.4. **Implications: Mobile phones and ritualized practices**

Observations and analyses of mobile phone use indicate that this medium can facilitate existing social practices (Ling, 2005; Fortunati, 2001; Townsend, 2000), and emerging literature suggests that the mobile phone may also extend our everyday activities to create a set of distinct social practices associated with this information and communication technology (Ito, 2005; Katz, 2006; Rheingold 2002).

One characteristic of mobile communication that differentiates it from other information and communication technologies (ICTs) is that mobile communication includes a performative process. It is within this performance that rituals are enacted as practices that engage with others to support or not support relationships.

Transitions are by their nature complex processes that involve feelings of instability, uncertainty and stretch relationship ties in uncomfortable ways at times. For first year undergraduates in this study, the start of undergraduate life represented a rite of passage. Results of the study show that previous experiences with transitions, for example the move from middle school to high school, offered some mechanisms for coping with change. The mobile phone appears to provide a means to manage relationships within the liminal environment of undergraduate life.

Through the examination of three ritual practices exhibited by first-year undergraduates, there is evidence that mobile phones offer a means to bridge relational gaps brought about by physically or psychologically moving away from family and friends. In this way, mobile phones appear to mitigate some of the negative perceptions often associated with life-stage transitions of the young. The ability of young people to always be “at-the-ready” to communicate, and having the means to choose when to
accept invitations to communicate, all contribute to a sense of autonomy during the transition.

While others have described the mobile phone as becoming an extension of the body (Oksman, V. & Rautiainen, P., 2002), I suggest that when socio-technical practices become ritualized and embedded into everyday life, the relationship between the device and the user becomes cognitively integrated. The integration of the mobile device into the lives of the first-years is described here as an example of constitutive entanglement, and this is an area for further study since the socio-technical implications could be important for how this “on generation” manages other life-stage transitions in the future.

Finally, I suggest that the results of this study — how undergraduates use the mobile phone to bridge the chasm of separation — display similarities about how people cope with other life-stage transitions, such as immigrating to a different country, changing careers or experiencing personal loss. Further study should be conducted examining the ritualistic practices that arise from the use of ICTs in these instances. Results of similar studies would provide insights on how social change at an individual-level is experienced in urban societies embedded with new media.

7.4. Building Bridges: Reciprocity and Trust in Maintaining and Building Relationships via the Mobile Phone

This final discussion expands on quantitative data presented in Chapter 6 to examine the way mobile phone practices increase social cohesion by providing the means to immediately and frequently access emotional support established through reciprocity and trust. As with the previous discussion in this chapter, I draw on Georg Simmel’s
bridge metaphor and also include ideas from Barry Wellman’s work on social support and reciprocity in Internet relationships.

In this discussion I show that for first-year university students reciprocity and trust are integral processes working within existing friendships, and that the mobile phone is a physical artefact (or bridge) that allows first-years to access the emotional support of their high school friends and family. Apart from the mobile phone’s use in this way to maintain existing relationships, I consider evidence that the mobile phone is also used to initiate new relationships by serving as a symbolic credit (Seligman, 1997) or promissory token as part of young people’s interpersonal exchanges.

This discussion concludes by (a) highlighting the key role that mobile phones play in facilitating network cohesion for first-years in their transition to university life and (b) introducing an emerging practice of using mobile phones to indicate interest in the early stages of building relationships even though the development of the relationships are executed through other media.

7.4.1. Social Support in the First Year

Studies of young adults transitioning to university consider high levels of peer social support to be a principal factor in the successful psychological adjustment to undergraduate life (Paul, Poole & Jakubowyc, 1998; Friedlander, Reid, Shupak & Cribbie, 2007; Pratt et al, 2000). In particular, perceived support from friends and family is one of the most important protective factors for undergraduates (Tao et al, 2000). “Perceived” because what constitutes support is not an absolute construct but depends on what the individual believes she needs and her ability to access the support from the
sources expected to hold it at any given time.

Social support is also considered to be a “protective” factor and can be considered to be part of an arsenal used to offset the risks of peer rejection, faltering self-esteem and other unknown social pitfalls in the path of the first-year student. To feel that there are people at close range who know and understand you provides a more stable base from which to push off and explore the new world.

In contrast to other forms of social support — for example babysitting support among suburban neighbors (Wellman, 1979) or technique assistance from work colleagues — for first year undergraduates, electronic communicative exchanges are a significant contributor to emotional well-being (Gordon, Juang & Syed, 2007). Among my participants, mobile phone conversations described as “social” and “fun/playful” account for approximately 85% of daily exchanges, compared with 10% of text messages and calls concerned with making arrangements and 5% covering information seeking and work-related topics. The questions for this section are a) How important is reciprocity — as in “you text me, I text you” — to the maintenance of relationships that provide support?; and b) How is trust associated with both the maintenance of existing relationships and the development of new ones?
7.4.2. Bridges, Reciprocity and Trust regarding the Mobile Phone

Bridges: Holding on and Branching out

In his short essay called The Bridge and The Door, Georg Simmel (1994) used the metaphor of a bridge to describe a physical artefact developed from a human desire to remain connected with others who are geographically separated. In the first year, undergraduates find themselves spending large amounts of time away from the people with whom they have developed long-term, and in many cases, supporting relationships. These relationships include friends from high school, neighborhoods and family members. These are also relationships that were developed through daily in-person interaction.

I suggest that Simmel’s notion of a device that provides the opportunity to voluntarily overcome physical obstacles to access others may be extended to the mobile phone, a device that bridges a location divide instantaneously and with minimal effort. In this way, the mobile phone takes the functionality of the land line literally “on the road” so that we can virtually reach out and touch someone 26 wherever and whenever we need to hold on; thus, the mobile phone potentially acts as a bridge providing access to established relationships and thereby facilitates access to emotional support.

The bridge metaphor is also useful when thinking about the way in which undergraduates build new relationships on campus. Simmel considered a bridge as a device that also facilitates new connections to places and people. As first-years hold on to

26 “Reach out and touch someone” was a Bell Telephone System slogan popular in the 1980’s in North America and the Caribbean.
old ties, they are also compelled to consider the potential for local support among classmates, acquaintances at residences and people that they meet at social events; thus, the mobile phone also potentially acts as a bridge, providing access to new relationships with the possibility for face-to-face support.

**Reciprocity: One Hand Can’t Clap**

Reciprocity, or doing for others if they have done or will do for you in the future, is closely associated with social support (Wellman, 2006). In a study of neighborhoods in East York, Toronto, Wellman et al (2006) provided evidence that a principal driver of reciprocity is giving support (p.17). This notion of reciprocal exchange underlies many theoretical conceptions of social interaction including Emile Durkeim’s *generalized exchange* as a basis of social cohesion and Erving Goffman’s articulation of *grooming talk* in describing communicative interaction rituals.

Guided by literature on other Information and Communication Technologies used within social networks as described in Chapter 2, in examining the data from this study, I anticipate that reciprocity will play an important role in establishing the norms and expectations around responses from friends and family. Exchange theories from the field of communication define reciprocity as, “the shared expectation that the recipient of a resource is obligated to and at the same time will return to the giver a resource roughly equivalent to that which is received” (Roloff and Campion, 1985, p 134). For people with a history of mobile phone use in their communicative interaction, the obliged equivalence includes the dimensions of content and speed of response.

In terms of content, mobile phone exchanges in personal interactions are excellent
examples of phatic communication where the specifics of the exchange are less significant than the exchange itself (Fiske, 1990). In fact, for very close relationships it is the lighter and less substantive exchanges such as grooming talk that provide the building blocks for a contented union (Toda and Higuchi, 1994). With regard to expectations around the speed of response, the “Crackberry” phenomena surrounding the Blackberry device is remarkable because with the exception of instant messaging, other written communication media such as letters, email, blogs and other social media do not carry with them a perceived expectation around near real-time response.

Social support sought by first-year undergraduates using mobile phones should be closely related to reciprocal exchanges within established friendship networks and should include features such as roughly equivalent numbers of messages sent and roughly equivalent intensities of exchanges between friends.

Trust: I Can Certainly Count on You, Right?

As a social construct, trust is a concept that intrigues a wide range of thinkers from philosophers to economists and from poets to cognitive scientists. Trust is necessary to the functioning of personal relationships and more broadly, social trust is considered a stabilizer of the social order since it reduces social complexity (Luhmann, 1988); however, trust is also inherently risky because it is fundamentally about relying on others to behave in an expected manner. Trust in personal relationships is developed over time and is aided by the social status of the other person(s) in the relationship. There are times when trust is based on the latter more than the former; for example, a toddler trusts adults and school-aged children trust their teachers.
As we grow older, trust in interpersonal relationships takes more time to develop and becomes associated with consistent experiences. This predictability that person A will likely do a specific thing reduces the vulnerability that we feel in relying on another person (Seligman, 1997, p. 21). This is especially true for long-term relationships when trustworthiness becomes taken for granted by both parties in an exchange. In this way, trust can be seen as an unintended outcome of reciprocal practices (Miszal, 2001, p. 313) within established relationships; therefore, the mobile phone as a mediator of reciprocity among friends for first-year undergraduates is also involved in the maintenance of trust.

But what if the relationship is new and there is no history of predictability upon which to base trust? Can the mobile phone be used to bridge new relationships where trust has not yet been established?

7.4.3. Maintaining Relationships: Reciprocity and Trust

The type of relationship (or tie type) is related to the frequency of calls made on the mobile phone. In the first semester, first-year undergraduates called 80% of their existing very close friends (including family) at least once per day using their mobile phones and conversely recorded no incidences of calling persons with whom there was no previous relationship (i.e. “strangers”). By the second semester, the majority of daily first-year undergraduate mobile phone calls continued to be very close friends and family with the number increasing to 91%; however, in the second semester, the percentage of daily calls made to strangers increased slightly to 2%. In both the first and second waves, there is evidence of a very high degree of reciprocity in the frequency with which first-year undergraduates call their six closest friends and the frequency with which their close friends call them (see Table 7.0).
**. Correlation is significant at the 0.01 level (2-tailed).

** Table 7.0 Reciprocity Based on a Correlation of Frequency of Calls Between First-Year Undergraduates and their Close Friends using Mobile Phones

Similarly, in both the first and second waves, there was evidence of a relationship between perception of trust and frequency of communication with a correlation value of $r = 0.952$ (see Table 7.1).

**. Correlation is significant at the 0.01 level (2-tailed).

** Table 7.1 Trust Based on a Correlation of Frequency of Calls Between First-Year Undergraduates and their Close Friends using Mobile Phones
Trust was also positively correlated with the length of time the first-year undergraduate knew the person with whom they regularly communicated using the mobile phone; \( r = 0.974 \) (see Table 7.2).

<table>
<thead>
<tr>
<th></th>
<th>To what extent do you feel you can trust: Person 1</th>
<th>How long have you known each person listed? Person 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent do you feel you can trust: Person 1</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>174</td>
</tr>
<tr>
<td>How long have you known each person listed? Person 1</td>
<td>Pearson Correlation</td>
<td>.974**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>174</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

Table 7.2 Trust Based on a Correlation of Length of Time Known Between First-Year Undergraduates and their Close Friends using Mobile Phones

Developing New Relationships – Reciprocity and Trust

In the study, first-year undergraduates were asked about their mobile phone practices with strangers who were defined as persons with whom there was no previous relationship. Again, the goal is to determine whether or not the relationship type (i.e. tie type) is related to the frequency of use of the mobile phone, especially with regard to reciprocity and trust in forging new relationships.

Figures 7.3 and Table 7.4 both show the low propensity for first year undergraduates to use the mobile phone as a means to meet new people. This remained true over both waves of the survey, with the second wave conducted in the second
semester showing a slight but insignificant increase in the likelihood that first-years would use their mobile phone to interact with strangers.

![Bar Graph Showing Use of Mobile Phones by First-Year Undergraduates to Meet New People](image)

Do you use the mobile phone to meet new people?

**Figure 7.3 Bar Graph Showing Use of Mobile Phones by First-Year Undergraduates to Meet New People**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid yes</td>
<td>17</td>
<td>9.8</td>
<td>9.8</td>
</tr>
<tr>
<td>No</td>
<td>157</td>
<td>90.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>174</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 7.4 Showing Use of Mobile Phones by First-Year Undergraduates to Meet New People**

In contrast, when asked about the type of contact information that first year undergraduates would give to someone that they met for the first time, the mobile phone number was the principal contact reported (see Figure 7.5 and Table 7.6).
In order to investigate this apparent contradiction of not wanting to use mobile phones to build new relationships, yet offering the mobile phone number to strangers, I asked questions in the in-depth interviews (n=25) to extract the reasons for this. First year undergraduates indicated that mobile phone numbers are frequently given out to a wide range of people (during Frosh Week for example) but if there is no established
relationship, the norm is to use the mobile phone number exchange to indicate an interest in building a relationship but to proceed using Facebook, Instant Messenger, in-person meet-ups or email — in order of preference. Once the parties determine that there is mutual interest to take the relationship further (usually after several weeks of interaction over another medium), the mobile phones are used to further develop the relationship. Should the receiver of the mobile phone number not respect the practice of deferred use, the called party uses call-screening to block unwanted calls.

The results of the surveys and interviews indicate that reciprocity and trust are core constituents of mobile phone interactions among close tie relationships of first year undergraduates; furthermore, the study shows that reciprocity and trust are highly positively correlated for established relationships especially when the relationship includes a history of interaction. In terms of maintaining relationships, the mobile phone is a preferred medium for seeking social support throughout the first year; however, the results show that for building new relationships, the mobile phone plays two separate roles. The first is to act as a token signifying interest in getting to know another person better where mobile phone numbers are initially exchanged between interested parties. During the next phase, the mobile phone is not used to deepen a fledgling relationship: interested parties using other media will exchange messages until it is mutually determined that there is value in progressing the relationship toward greater closeness. It is at this point that the mobile phone plays its second role as the medium supporting an increasingly close tie.

While further research is required to fully understand the layers of this practice, it appears as though reciprocity and trust need to be perceived as established on alternate
media before the mobile phone is used. The data show that there is a strong positive correlation in the use of mobile phones within relationships perceived of as very close. Mobile phone research has shown that this medium is more closely associated with face-to-face interaction than is email (Hogan, Wellman; Ling; Ito; Fortunati) — in other words, mobile phones are perceived to have a shorter social distance than do some other communication media. This may account for the practice of using a more distant media to establish a relationship before the interaction ports to the mobile phone.

Simmel’s bridge metaphor is useful to describe the mobile phone practices of young people to both maintain and extend relationships. The reciprocity and trust that is part of established relationships with close friends and family provide the social cohesion within which the mobile phone is used to frequently and rapidly overcome geographic distances to access emotional support. For nascent relationships, the mobile phone number is a token representing intent to build a bridge and following the establishment of an acceptable level of trust engendered through reciprocal exchanges on more distant media, mobile communication provides the means to access more local support.

7.4.4. Implications: Mobile phones, Reciprocity and Trust

This discussion considered quantitative data gathered from the first and second wave surveys of this study to provide evidence that mobile phone practices in social networks counteract social entropy and increase social cohesion by providing the means to immediately and frequently access emotional support established through reciprocity and trust. By using Georg Simmel’s bridge metaphor and drawing on concepts from previous studies on ICTs and social networks (Wellman, 2001; Quan-Hasse, 2007; Campbell, 2006), I demonstrate the way the mobile phone facilitates access to network
support for first year undergraduates.

Two important requirements enabling first-years to access support from existing relationships are reciprocity and trust. In this discussion I showed that for first-year university students, reciprocity and trust are integral processes working within existing friendships and that the mobile phone is a physical artefact (or bridge) that allows first-years to access the emotional support of their high-school friends and family. Further, to playing a role in maintaining existing relationships, the mobile phone is also used to initiate new relationships by serving as a symbolic credit (Seligman, 1997) or promissory token as part of young people’s interpersonal exchanges. Interestingly, for new relationships, the mobile phone is not the medium of choice and other more distant communicative media are used for the development of expectations within the relationship through reciprocal exchanges. In this way, predictability and trust — both markers of stability in networked relations — are fostered elsewhere. Following this stage, the mobile phone is again used to enrich new relationships, especially through phatic exchanges.

In summary, mobile phones play key roles in facilitating network cohesion for first-years in their transition to university life by providing timely access to existing trusted friends and family. The devices provide mechanisms to facilitate emerging practices in the early stages of building relationships while reciprocity and trust are key platforms upon which mobile phone interactions are played out.
Chapter 8- Conclusion

Everything's changing when I turn around
I'm out of my control
I'm a mobile
Everything's changing out of what I know
Everywhere I go
I'm a mobile


8.1. Final Impressions

In this dissertation I presented findings of a longitudinal study that explored the role that mobile phones played in the social networks of first-year undergraduates. This study focused on mobile phone use within a process of transition that teenagers undergo as they attain the socially defined stage of young adulthood. First-year undergraduates currently have a panoply of communication media to chose from as they navigate their desires to remain connected to networks of friends and family nurtured over years of interaction, while forging relationships within new social environments as part of exercises in identity exploration. I chose to consider how mobile phone practices evolved in response to personal network changes and included other social media such as instant messaging, Facebook and Skype as they were included by participants in describing their experiences. The findings demonstrated that the mobile phone was integral to the way in which networks were experienced, managed and understood.

To undertake this study I asked a seemingly simple question: Is there evidence that mobile phones are used to maintain and extend personal networks? As is often the case, this simple question unearthed complex answers. The data show that while mobile phones are used to maintain personal networks, in the first semester this practice also
hindered network expansion. While undergraduate perceptions of loneliness were reduced, an internal sense of cohesion was increased due to having the mobile phone “always with” — the consequence being a more closed and intimate network. This telecocoon created a world more intimate for first-years; however, as social networks are fundamentally about relationships, telecocoons appear to be a temporary response to transition dynamics. In subsequent semesters, there is evidence of mobile phone use to signal interest in getting to know someone better and although there are some delicate social rules to maneuver, mobile phone practices are indirectly involved in the development of new relationships.

The findings indicate additional tensions in relationship negotiation for commuter students who balance the everyday performance of their on-campus identities with frequent and virtual access to parents, siblings and friends via mobile communication. The daily face-to-face interactions with individuals from pre-existing networks juxtaposes the young adult’s pre-university identities with nacent first-year identities in the instant of a ringing tone. These findings concur with other research that mobile phone use is complementary to face-to-face communication but also highlight the consequence that daily face-to-face interaction with existing ties amplifies mobile phone communication within these networks at the expense of new ties.

The findings also showed more similarities than differences in the way that young men and young women incorporated the mobile phone into their daily social experiences. Where there were differences, for example in the use of mobile phones to initiate new relationships with the opposite sex, culturally imbued prescriptions on male-female relations feature strongly in mobile phone practice. Notions of concerns for personal
safety and risk of societal hazards-at-large played a part in encouraging both male and female young adults to keep a strong support structure in place, with parents tightening the bonds via mobile communication.

On a conceptual level this dissertation provides empirical examples of the constitutive entanglement of the mobile phone and the sociality of young people. By connecting youth sociality, mobile phone affordances and ritual interaction, a more integrated impression of how first-year undergraduates cope with a transition was obtained. In truth, this study was not about exploring the role that mobile phones play in maintaining and extending social networks but about the degree to which youth sociality and mobile phones is co-constituted and reciprocally embedded.

Finally, the findings and analysis of the data from this study offer an additional dimension to how scholars, practitioners, and administrators can consider the kinds of information experienced at the nexus of relationships and networks of people. If information practice deals with information primarily from an examination of social and cultural drivers (Savolainen, 2008, p. 48), then information should be considered to be more than material objects that people manipulate, but information may also be understood as a process in and of itself. However, in the majority of cases information practice is applied and interpreted within the domain of materiality.

Savolainen (2008) suggests that we may consider information practices to be comprised of three categories; information seeking, information use, and information sharing. In the descriptions of these three categories care is taken to position media practices, such as the use of a mobile phone, solely in the realm of information sharing. Communicative information that is imparted, performed and retained as part of the
maintaining and building of relationships is largely excluded from the definition of information practice since this form of information is not material. Savolainen (2008) states that to profile the concept of everyday information practice, the main focus is devoted to the seeking, use, and sharing of material (emphasis added) that may be primarily employed for serious (informational, not solely frivolous) purposes (p. 51). Thus, while book reading is an information practice – and the information actions of that practice include selecting the book (seeking), making annotations in the margins (use), and lending the book to a friend (sharing) – texting your sister using your mobile phone is not likewise classified as an information practice.

From this study two observations can be made regarding the definition of information practice. The first is that the information processes involved in maintaining and extending relationships during the first-year at university were fundamental to the sociality of the young people studied. Participants actively sought-out members of their personal networks for social support, they used the support (or lack thereof) to make value judgements about the individuals in their networks, and they shared their everyday experiences, at times on an hourly basis. This was all supported and facilitated by their mobile phones and should be considered to have taken place within an information context. Therefore, there is ample evidence of information seeking, use, and sharing within their mobile phone practices. By limiting the definition of information practices to sharing, we draw in incomplete understanding of how information functions as a process in the management of relationships.

The second observation is that information practice should not be bounded by a researcher’s judgement of what is serious versus what is frivolous. Text messages are a
primary means of information exchange and expression for young people. Even by their own descriptions, most of the daily text messages exchanged by young people are fun, playful and frivolous. Yet this is the information practice that is at the centre of adjustment, access, and cohesion for individuals participating in youth networks. Scholars in the field of Media Studies have identified phatic communication as the serious content of relationships. Thus, care must be taken as we evolve concepts in the Information field to not exclude emerging practices particularly for these populations of interest.

8.2. Contributions

This research makes contributions to various areas: (1) Canadian scholarship on new media practices; (2) the fields of Information and Media Studies; (3) university administrators and counselors who design programming for and guide undergraduate education; (4) communities of young people as documentation of a reflexive consideration of how they experience their social networks and; (5) to mobile communication service providers who increasingly seek to understand the information practices that mobile devices create and are adapted to serve. A short description of each of these contributory areas is provided in this final section.

8.2.1. Contribution to Canadian Scholarship on New Media

This study contributes to a growing focus on new media in Canadian scholarship. Globally in the popular media and at times in scholarly research, the slower penetration rate of mobile phones in Canada has been extrapolated to signify restraint or lower
intensity in the use of mobile communication in our daily lives. This is despite Canada’s long relationship with communication technologies starting as early as the 19th Century with Alexander Graham Bell and continuing today with the dominance of Research In Motion’s phenomenally popular Blackberry device.

This study is the first to empirically collect data on how young Torontonians experience social network challenges within the context of the mobile phone. This data supplements research on experiences with Internet-based social utilities such as email, instant messaging, Facebook and chat/message board applications in Canadian cities. This data may be used in further research to compare media use within relevant Canadian social contexts to identify similarities and differences with respect to the ways in which information practices are played out. In addition, the data are a source for analyses of how different or similar Canadians’ experiences are to those of other North Americans and Europeans and to the many people using new media in their home countries such as India, China, Africa and the Caribbean — from which a large percentage of Canadians are expatriated.

Understandings of Canadian information practices can and should inform social policy. This research serves as one such view into the ways in which some Canadians incorporate the mobile phone into their daily lives.

8.2.2. Contribution to Information & Science and Technology Studies

Studies of information practice contribute to a growing area of interest to both academics and industry practitioners. Situated in the intersection of technology and society, information scholars experiment with unique ways to problematize and analyze
the social consequences of new media. As a recently new area of research, the concepts and methods used are encouraged to be interdisciplinary and this dissertation is reflective of this intellectual spirit of openness.

Methodologically, this dissertation demonstrates a way in which network analysis techniques may be combined with a Science and Technology Studies (STS) lens. Studying social networks in flux over a fairly large sample is one of the strengths of Social Network Analysis. Conceptually framing the mobile phone as co-constitutive of youth sociality is a perspective for which STS offers ideas rich in ontological significance for how we may interpret technological practices.

Also, by adopting the concept of constitutive entanglement as originally articulated by Orlikowski (2007) in the context of Blackberry use, this study contributes several more examples of how mobile phone practice is intricately bound with technological affordance.

When generalized, the conceptual model developed and tested in this study offers a way to consider the interrelationships among the three key concepts used: sociality, technological affordances and ritual interaction. Taken together these present a unique way of analyzing technosocial experiences of transition that can be applied to other groups such as new immigrants, people relocating to another city, people changing careers or undergoing any other life-stage change.

Finally, fear of being lonely is one of the key issues in binding people together. Studies of social cohesion tend to focus on the large-scale processes, such as work and community-development, from which tensions arise. Goffman and others turned our attention to the importance of examining dyadic interaction rituals and the importance in
considering the individual when assessing contributions and obstacles to cohesion. This dissertation contributes one such study of the articulation of cohesion from the perspective of individuals.

8.2.3. *Contribution to University Administration*

University administrators are keenly aware of the stress under which first-year students transition. Cristelle Audet, a Counseling Psychologist at the University of Alberta Student Counseling Services states:

> The transition into university — no matter one's age, life experience or cultural background — can result in any number of physical, emotional or behavioural changes that can be difficult to deal with. Although some students experience a smooth transition, research also shows that first year students on average have expectations about university that are more positive than their actual experience. This is called the "freshman myth" and students generally notice this difference during their first year of enrollment.²⁷

Preparing for and offering assistance to those dealing with the freshman myth is an important service at all universities. An understanding of first-years’ information practices vis-à-vis the mobile phone adds a new dimension to the focus that counselors are placing on supporting students in their adjustment. I have recently been approached by the University of Waterloo Counseling Services to address administrators and counselors on the findings of this study. There is an intergenerational difference in the ways in which mobile communication are incorporated into social life that leaves counselors with a knowledge gap in this area. This study takes a step toward reducing this

8.2.4. **Contribution to Young Torontonians**

One of the more enjoyable aspects of conducting this study has been facilitating young people through a reflective process. Many participants spent time looking at the result of their sociograms and making comments that were mainly self-directed about the manner in which their social lives had shifted in a relatively short space of time. It was my impression that there are not a great many opportunities for first-years to pause and think meaningfully about the extent of the transformation that they undergo and the social consequences of mobile phone use in their relationships. Interview participants requested follow-up contact regarding any publications that would arise from the study so that they could also benefit from learning about themselves. Therefore, this study is a contribution to young Torontonians and those who conduct Youth and Children Studies.

8.2.5. **Contribution to Mobile Communication Service Providers**

Over the course of this dissertation study, I received requests to address departments at five different mobile phone providers as well as consultants to the service providers. Service providers are often unaware of how the products and services that they bring to market are incorporated into their customers’ lives. In my former life as a telecommunications consultant to Marketing Analytics and Product Development departments of mobile operators both in Europe and North America it was this information problem that peaked my strong interest in this area.

Too many roundtable sessions are devoted to launching services that have very little bearing on the way that people seek, use or share information using mobile phones.
Globally, the increasing revenue component of mobile services — which has surpassed landline service revenues in most countries — puts an additional focus on this technology. The promise or threat of increasing competition in the mobile service market through the acquisition of new spectrum markets in North America by new startups is also driving operators to devote more time to a better understanding of mobile phone practices.

This research contributes a snapshot of how young people adapt, adopt and assimilate the mobile phone in the maintenance and extension of social networks in Toronto, Canada.
References


Ling, R., & Helmersen, P. (2000). It must be necessary, it has to cover a need: The adoption of mobile telephony among pre-adolescents and adolescents, in The social consequences of mobile telephony, Oslo.


Miles, S. (2002). "Victims of Risk? Young People and the Construction of Lifestyles", in
Young people in risk society: the restructuring of youth identities and transitions in late modernity, edited by Mark Cieslik and Gary Pollock, Ashgate Publishing.


Appendix I

Results of Pearson’s Chi-square tests on correlations, testing the relationship between categorical variables. Test statistics and associated p-values are presented in tables (a-i) below.
Results of Pearson’s Chi-square tests on correlations

a) Chi-square test results for crosstabulation of Place of Current Residence and Satisfaction with Social Life.

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>26.798a</td>
<td>15</td>
<td>.030</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.267</td>
<td>15</td>
<td>.035</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>2.275</td>
<td>1</td>
<td>.131</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>142</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 15 cells (62.5%) have expected count less than 5. The minimum expected count is .20.

b) Chi-square test results for crosstabulation of Place of Change in Residence and the Frequency of Daily Mobile Phone Use.

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>3.301a</td>
<td>3</td>
<td>.347</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>3.348</td>
<td>3</td>
<td>.341</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.910</td>
<td>1</td>
<td>.340</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>121</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.97.
c) Chi-square test results for crosstabulation of Place of Current Residence and the Frequency of Daily Mobile Phone Use.

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>5.148a</td>
<td>9</td>
<td>.821</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>6.238</td>
<td>9</td>
<td>.716</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.427</td>
<td>1</td>
<td>.513</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>121</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .47.

d) Chi-square test results for crosstabulation of Gender and the Frequency of Daily Mobile Phone Use – Semester 1.

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>35.789a</td>
<td>8</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>34.463</td>
<td>8</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>21.134</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 1.77.
e) Chi-square test results for crosstabulation of Gender and the Frequency of Daily Mobile Phone Use – Semester 2.

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>3.058a</td>
<td>3</td>
<td>.383</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>3.098</td>
<td>3</td>
<td>.377</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.706</td>
<td>1</td>
<td>.401</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>113</td>
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<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.17.

f) Chi-square test results for crosstabulation of Gender and the Reasons for Using Mobile Phones – Semester 1.

<table>
<thead>
<tr>
<th>Personal Safety - Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>34.455a</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>36.363</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>19.797</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.23.

<table>
<thead>
<tr>
<th>Avoid Loneliness - Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>12.822a</td>
<td>2</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>14.104</td>
<td>2</td>
<td>.001</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.700</td>
<td>1</td>
<td>.010</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.46.
### Maintain Existing Relationship - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>27.392</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.863</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>21.440</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.33.

### Meet New People - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>9.905</td>
<td>2</td>
<td>.007</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>11.202</td>
<td>2</td>
<td>.004</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>2.838</td>
<td>1</td>
<td>.092</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.15.

### Information Access - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>19.939</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.688</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>13.779</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.71.
Coordinate Meetings - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>37.118</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>40.927</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>32.912</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.72.

g) Chi-square test results for crosstabulation of Gender and the Reasons for Using Mobile Phones – Semester 2.

Personal Safety - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>34.455</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>36.363</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>19.797</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.23.

Avoid Loneliness - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>12.822</td>
<td>2</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>14.104</td>
<td>2</td>
<td>.001</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.700</td>
<td>1</td>
<td>.010</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Maintain Existing Relationship - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>27.392a</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.863</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>21.440</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.33.

### Meet New People - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Likelihood Ratio</td>
<td>11.202</td>
<td>2</td>
<td>.004</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>2.838</td>
<td>1</td>
<td>.092</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.15.

### Information Access - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>19.939a</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.688</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>13.779</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.71.
Coordinate meetings - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>37.118</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>40.927</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>32.912</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.72.

h) Chi-square test results for crosstabulation of Maintain Existing Relationships and Length of Time Using a Mobile Phone.

Maintain Existing Relationship - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>24.084</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>26.083</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>20.429</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.00.

Avoid Loneliness - Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>6.243</td>
<td>4</td>
<td>.182</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>9.367</td>
<td>4</td>
<td>.053</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>5.309</td>
<td>1</td>
<td>.021</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.05.
### Coordinate Meetings - Chi-Square Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>22.078a</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>25.703</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>16.233</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.57.

### Chi-Square Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
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<td>.003</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>14.648</td>
<td>3</td>
<td>.002</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>8.772</td>
<td>1</td>
<td>.003</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .33.

i) Chi-square test results for crosstabulation of Maintain Existing Relationships and Use of Mobile Phones by Close Friends.
Wave 2 Questionnaire
Mobile Society Questionnaire (2)

1. Mobile Society Questionnaire (2)

Hi and thanks for participating again in the Mobile Society study. Before starting please have a pen/pencil and paper available for a few of the questions near the end. I look forward to your responses.

Rhonda McEwen, PhD Candidate Information Studies, University of Toronto. (email) mobilesociety@yahoo.ca

*1. Informed Consent:
You are invited to take part in a doctoral research study conducted by Rhonda McEwen of the University of Toronto. To be eligible you must be a first-year undergraduate student at a university in Toronto, over 17 years of age, and a mobile phone user. The purpose of the study is to explore how the mobile phone is used in the management of social networks. It should take approximately 15-30 minutes to complete. This survey is confidential which means that your identity will not be known to anyone besides Rhonda McEwen, and only aggregated statistics will be reported. Your participation is voluntary. If you are uncomfortable with any of the questions you are asked, you are free to decline to answer specific survey questions. To show appreciation for your time, completed questionnaires are entered into a draw to win iPhones, and other valuable prizes. If you withdraw from the survey you forfeit the right to prizes. If you have questions about your rights as a research subject, please contact the Ethics Review Office at 416-946-3273 or email: ethics.review@utoronto.ca, or if you have any questions about the research you should contact my supervisor, Dr. Nadia Caidi: nadia.caidi@utoronto.ca.

Do you agree to participate in this study?
- Yes
- No

2. Residence

2. Where is your current primary residence?
- On campus
- Off-campus, but not with parents/family
- At parent(s) house
- Not at parent(s) house, but with family

3. Did you change residence/move when you started university last year (2007)?
- Yes
- No

3. Mobile phone use

4. Do you have a landline (fixed line) phone at home/residence?
- Yes
- No
### Mobile Society Questionnaire (2)

Questions 5 to 34 are about mobile phone use.

5. Do your very close and somewhat close friends use mobile phones? ("Very close" friends are people with whom you discuss emotional/family problems, share innermost thoughts and affections, and/or people who you believe will be there for you when you need help. "Somewhat close" friends are people with whom your relationship is not "very" close, but people with whom you are nevertheless quite familiar).

   - Yes
   - No
   - Most do, but a few don't
   - A few do, but most don't

6. Do you use a mobile (cell) phone?

   - Yes
   - No

### 4. Length of use

7. How long have you used a mobile phone?

   - Less than 6 months
   - 6-11 months
   - 12-17 months
   - 18 months or more

8. Do you use the mobile phone every day?

   - Yes
   - No

### 5. Yes - use mp daily

9. On average, how frequently in the day do you use the mobile phone (includes receiving calls, making calls, sending text messages, receiving text messages, playing games, accessing the Internet, setting alarms, etc).

   - very often (more than 25 times a day)
   - sometimes (10 to 25 times a day)
   - rarely (5 to 9 times a day)
   - almost none (fewer than 5 times a day)

### 6. No - mp use weekly

10. Do you use the mobile phone every week?

    - Yes
    - No

### 7. Yes - weekly use
Mobile Society Questionnaire (2)

11. On average, how frequently per week do you use the mobile phone (includes receiving calls, making calls, sending text messages, receiving text messages, playing games, accessing the Internet, setting alarms, etc).

- 1-5 times
- 6-10 times
- 11-15 times
- 16 or more times

8. Question #10

12. What functions do you perform on the mobile phone? Select all that apply.

- talking
- texting
- playing games
- taking pictures
- Other (please specify)

- sending pictures
- downloading
- listening to music

13. As a mobile phone user, which statement best describes you?

- a talker
- a text user
- a gamer
- a photographer
- a downloader
- a music listener
- Other (please specify)

9. # 12 Rank groups
Mobile Society Questionnaire (2)

14. RANK the following groups of people based on the frequency of communication you have with them using your mobile phone on a weekly basis, with 5 indicating the greatest amount of communication and 1 indicating the least amount of communication. ("Very close" friends are people with whom you discuss emotional/family problems, share innermost thoughts and affections, and/or people who you believe will be there for you when you need help. "Somewhat close" friends are people with whom your relationship is not "very" close, but people with whom you are nevertheless quite familiar, more so than with acquaintances. "Acquaintances" are persons whom one can discuss a single topic with in detail, but who are not personally close to you. "Strangers" are persons with whom there is no previous relationship including face-to-face contact).

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<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>Very close friends</td>
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<td>Somewhat close friends</td>
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<td>(including family)</td>
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<tr>
<td>Acquaintances</td>
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<tr>
<td>Strangers</td>
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</tbody>
</table>

15. Why do you use the mobile phone? Select all that apply.

- [ ] for personal safety
- [ ] to avoid loneliness
- [ ] to maintain existing relationships
- [ ] to meet new people
- [ ] for information access
- [ ] to coordinate meetings
- [ ] for entertainment
- [ ] Other (please specify)

16. Where do you use your mobile phone? Select all that apply.

- [ ] at home/residence
- [ ] outdoors
- [ ] in the classroom
- [ ] in the car
- [ ] all of the above
- [ ] Other (please specify)
Mobile Society Questionnaire (2)

17. What other activities do you engage in while you use your mobile phone? Select all that apply.
- walking
- driving
- riding in a car/bus/streetcar
- riding a bicycle/motorcycle
- socializing with others
- eating
- watching TV
- playing games
- doing assignments/working
- all of the above
- Other (please specify)

18. Would you call a mobile phone number even if you knew the recipient was within range of email or home phone?
- Yes
- No

19. How comfortable do you feel, in general, about calling someone on their mobile phone if that person gave you his/her mobile number?
- Very comfortable
- Somewhat comfortable
- Uncomfortable

20. How comfortable do you feel, in general, about calling someone on their mobile phone if you received the mobile number from a third party/directory?
- Very comfortable
- Somewhat comfortable
- Uncomfortable

11. Question #16

21. Do you keep your mobile phone ringer on all the time or do you vary ring settings? Select all that apply.
- On ringer all the time
- Change to vibrate, e.g. during class
- Change to silent mode, e.g. during class
- Switch off phone at times e.g. at night
- Other (please specify)
22. Which one would you be most upset about losing for 1 day?
- email access
- mobile phone
- social networking software access (e.g., Facebook, MySpace)
- search engine access
- none of the above

23. Which of the following descriptions apply to your daily life at the moment?
- I have a busy schedule of events throughout the day
- I have a couple of scheduled events, but am open most of the day
- I do not have any scheduled events in the day

24. Which of the following descriptions apply to your daily life at the moment?
- I have many unplanned events throughout the day
- I have a few unplanned events throughout the day
- I rarely have unplanned events in the day
- I never have unplanned events throughout the day

12. Lonely

25. Choose the statement that best describes your social life at this point in time.
- I go out/hang out with friends more than I would like to.
- I go out/hang out with friends enough to satisfy my social needs.
- Despite going out/hanging out with friends, I feel lonely.
- I do not go out/hang out with friends as much as I would like to.
- I do not go out/hang out with friends much at all, and this is by choice.
- I do not go out/hang out with friends much at all, and I sometimes feel lonely.

26. Fill in the blank in the following sentence in RANK ORDER with an option suggested below:
"When I feel lonely and miss my friends or family, I use _________ to reach out to them".
Indicate your first choice to fill the blank by clicking on the button under the "First choice" column, etc.

<table>
<thead>
<tr>
<th></th>
<th>First choice</th>
<th>Second choice</th>
<th>Third choice</th>
<th>Fourth choice</th>
<th>Fifth choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>my residence land-line phone</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>my mobile phone</td>
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<tr>
<td>email</td>
<td></td>
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<tr>
<td>instant messenger</td>
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<tr>
<td>facebook/myspace</td>
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<tr>
<td>Other (please specify)</td>
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</tbody>
</table>

13. Feelings
**Mobile Society Questionnaire (2)**

27. Based on YOUR OWN experience of using mobile phones, how would you describe YOUR FEELINGS towards...

<table>
<thead>
<tr>
<th>Strong Negative</th>
<th>Negative</th>
<th>A Little Negative</th>
<th>Neutral</th>
<th>A Little Positive</th>
<th>Positive</th>
<th>Strong Positive</th>
<th>N/A</th>
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<td>Having small screens on your phone</td>
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<td>The cost of calls</td>
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<td>The cost of devices</td>
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<td>Being dependent on mobile phones</td>
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<tr>
<td>Being so easily accessible to friends outside of university</td>
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<tr>
<td>Being so easily accessible to family members</td>
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<tr>
<td>Being so easily accessible to university colleagues</td>
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<tr>
<td>Efforts to keep your mobile phone safe</td>
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<tr>
<td>Not having face-to-face communication</td>
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</tr>
</tbody>
</table>

14. Call length

28. On average, how long are your mobile phone conversations?

- less than 1 min
- 1-5 mins
- 6-10 mins
- 11 or more mins

29. Approximately, how much was your mobile phone bill last month?

- $15-$30
- $31-$60
- $61-$100
- Over $100

30. Who pays your mobile phone bill?

- I do - 100% of the costs.
- My parent(s) do - 100% of the costs.
- Both my parent(s) and I - we share the costs.
- My romantic partner/spouse - 100% of the costs.
- Both my romantic partner/spouse and I - we share the costs.
- My employer.
- Other (please specify)

15. Talk about

275
Mobile Society Questionnaire (2)

31. How would you describe your conversations on the mobile phone?

<table>
<thead>
<tr>
<th></th>
<th>Social</th>
<th>Work-related</th>
<th>Fun/playful</th>
<th>About arranging things</th>
<th>Information seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most</td>
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<tr>
<td>Some</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Few</td>
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<tr>
<td>Couple</td>
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</tr>
<tr>
<td>Rare</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

32. What kinds of things do you talk about on the mobile phone? Select all that apply.
- near-term events
- concerns/problems
- gossip
- school work
- all of the above

16. Screening

* 33. Do you screen your mobile phone calls (i.e. do you decide not to answer an incoming call)?
- Yes
- No

17. Yes screen

34. Which mobile phone calls are you more likely not to answer even if you were free to answer a call? Select all that apply.
- From a parent
- From a sibling
- From a spouse/romantic partner
- From a friend
- From an acquaintance
- From a number you do not recognise
- Other (please specify)

35. How do you screen mobile phone calls? Select all that apply.
- Watching caller-id
- Listening to different ring tones
- Letting call go to voice mail and listen to the voice mail
- Other (please specify)
### Mobile Society Questionnaire (2)

36. How often do you screen calls?
- Screen every incoming call
- Screen about half of incoming calls
- Almost never screen calls

18. Socializing

Questions 37-48 explore the use of mobile phones use for socializing.

37. How important is the mobile phone in helping you maintain social relationships?
- essential
- very important
- important
- somewhat important
- not important

38. On average, how many different people do you call more than once per day?
- 0
- 1-3
- 4-6
- 7-9
- 10 or more

19. Frequency of calling

39. Of the people that you call most frequently (i.e. at least once per day), about what percentage of them do you consider to be very close/intimate friends?
- 100% (all of them)
- 75% (three quarters of them)
- 50% (half of them)
- 25% (a quarter of them)
- Fewer than 25%

40. In general, how frequently do YOU call THEM using your mobile phone?
- More than once per day
- Once a day
- A few times per week
- Once a week
- 2-3 times per month
- Once a month
- Less than once a month
- Almost never
- Never

20. Question 41
Mobile Society Questionnaire (2)

41. Of your six closest and/or most intimate friends, how often do THEY call YOU on your mobile phone?
- More than once per day
- Once a day
- A few times per week
- Once a week
- 2-3 times per month
- Once a month
- Less than once a month
- Almost never
- Never

21. Question 42

42. What contact information are you most likely give to someone that you have met for the first time (new acquaintance) and wish to meet again in the future?
- email address
- mobile phone number
- residence phone number
- IM address

43. How likely are you to enter a new acquaintance’s contact information into your mobile phone memory when you first get it?
- Very likely
- Somewhat likely
- Unlikely

22. MoSoSo

* 44. Have you heard of "mobile social networking" services - these are services that help you keep up-to-date with the physical location of others?
- Yes
- No

23. Yes - MoSoSo

45. Can you recall the names of any "mobile social networking" services?

46. Do you use a "mobile social networking" service?
- Yes
- No

24. Why MoSoSo
Mobile Society Questionnaire (2)

47. Why do you use a "mobile social networking" service? Select all that apply.
- To arrange face to face meetings with existing friends/family To meet new people
- To find out about popular places
- To try out new technologies
- Other (please specify)

25. Why no MoSoSo

48. Why don’t you use a "mobile social networking" service? Select all that apply.
- Haven’t found time to sign-up
- None of my friends/family use one
- Don’t see any benefit of using one
- Have concerns about these services
- Not Interested
- Other (please specify)

26. Since arriving at Uni

Questions 49 to 54 reflect on your use of mobile phone(s) since arriving at your university last semester.

49. When you think about your social relationships, who do you... (Select all that apply).

<table>
<thead>
<tr>
<th></th>
<th>Family</th>
<th>Very close friends</th>
<th>Close friends</th>
<th>Somewhat close friends</th>
<th>Acquaintances</th>
<th>Strangers</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call on the mobile phone daily</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Go to when you need help/support</td>
<td>☐</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Have over 5 minute long mobile phone conversations with</td>
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<tr>
<td>See face-to-face on a daily basis</td>
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<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Not see face-to-face on a daily basis</td>
<td>☐</td>
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<td>☐</td>
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<tr>
<td>Go out on social events with</td>
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<tr>
<td>Wish you had more contact with</td>
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<td>Wish owned a mobile phone</td>
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</table>

50. Since arriving at the university last semester, have any of your very close and/or romantic (girlfriend/boyfriend/spouse) relationships changed?
- Yes
- No
Mobile Society Questionnaire (2)

27. Relationship change

51. In what ways have your very close and/or intimate relationships changed? Select all that apply.
- More close friends
- Fewer close friends
- New girlfriend/boyfriend
- No change
- Other (please specify)

28. New mobile numbers

52. Since arriving at the university last semester, how many new mobile phone numbers have you added to your mobile phone list?
- 0
- 1-5
- 6-10
- 11 or more

53. Since arriving at the university last semester, have your mobile phone habits changed?
- Yes
- No

29. Yes - Habits

54. Indicate the ways that your mobile phone habits have changed? Select all that apply.
- More calls made
- Fewer calls made
- More calls received
- Fewer calls received
- More texts sent
- Fewer texts received
- Longer calls v Shorter calls
- None of the above

30. Provider
### Mobile Society Questionnaire (2)

**55. Who is your mobile phone service provider?**
- Rogers Wireless
- Bell Mobility
- Telus
- Fido
- Primus
- Other (please specify)

**31. Close ties**

Think of all the times you used your mobile phone, for voice calls and text, in the past WEEK. Considering every day of the week, think of the nicknames or initials of up to SIX people whom you communicated with most frequently. This list can include friends on or off campus, acquaintances, professors, family or strangers.

**56. Enter names/initiais below. Since you will use the SAME NAMES for all of the questions in this section, you may want to write the names and corresponding number on a piece of paper to refer to them. e.g. Sara = Person #1; T.K. = Person #2; etc.**

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</table>

**57. What is the approximate age of each person listed above?**

<table>
<thead>
<tr>
<th></th>
<th>Under 10 years</th>
<th>10-14 years</th>
<th>15-18 years</th>
<th>19-25 years</th>
<th>26-30 years</th>
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</table>

**58. What is the sex of each person listed?**

<table>
<thead>
<tr>
<th></th>
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<th>Female</th>
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<tbody>
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<td>Person #6</td>
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</table>
Mobile Society Questionnaire (2)

59. If the person listed is currently studying at a university, what is their major?  
(Please ensure the person's number entered in question 55 matches response.)

<table>
<thead>
<tr>
<th></th>
<th>Not currently at a university</th>
<th>Arts</th>
<th>Education</th>
<th>Engineering</th>
<th>Health Sciences</th>
<th>Information &amp; Media Studies</th>
<th>Law</th>
<th>Music</th>
<th>Business School</th>
<th>Science</th>
<th>Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td></td>
<td></td>
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<tr>
<td>Person #2.</td>
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<tr>
<td>Person #3.</td>
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<tr>
<td>Person #4.</td>
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<tr>
<td>Person #5.</td>
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<tr>
<td>Person #6.</td>
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<tr>
<td>Other (please specify)</td>
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</tr>
</tbody>
</table>

32. More close ties

60. In your opinion, with what ethnic group would each person listed identify the most?

| Person #1.       |                             |     |           |             |                |                             |    |       |                 |         |               |
| Person #2.       |                             |     |           |             |                |                             |    |       |                 |         |               |
| Person #3.       |                             |     |           |             |                |                             |    |       |                 |         |               |
| Person #4.       |                             |     |           |             |                |                             |    |       |                 |         |               |
| Person #5.       |                             |     |           |             |                |                             |    |       |                 |         |               |
| Person #6.       |                             |     |           |             |                |                             |    |       |                 |         |               |

61. In general, how frequently do you communicate on the mobile phone with each person listed?

<table>
<thead>
<tr>
<th></th>
<th>More than once a day</th>
<th>Several times a day</th>
<th>2-3 times a week</th>
<th>Once a week</th>
<th>Once a month</th>
<th>Several times a year</th>
<th>Once a year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person #2.</td>
<td></td>
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</tr>
<tr>
<td>Person #3.</td>
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<tr>
<td>Person #4.</td>
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<tr>
<td>Person #5.</td>
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</tr>
<tr>
<td>Person #6.</td>
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</tr>
</tbody>
</table>
### Mobile Society Questionnaire (2)

#### 62. What is the relationship between you and each person listed?

<table>
<thead>
<tr>
<th></th>
<th>Family</th>
<th>Close friend</th>
<th>Somewhat close friend</th>
<th>Acquaintance</th>
<th>Stranger</th>
<th>Romantic partner (girlfriend /boyfriend /spouse)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #2.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #3.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #4.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #5.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #6.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### 63. How long have you known each person listed?

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 months</th>
<th>5 to 11 months</th>
<th>1 to 3 years</th>
<th>4 to 6 years</th>
<th>7 years or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #2.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #3.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #4.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #5.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #6.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### 33. More close ties 2

#### 64. How close do you feel to each person listed?

<table>
<thead>
<tr>
<th></th>
<th>Very close</th>
<th>Somewhat close</th>
<th>Neutral</th>
<th>Somewhat distant</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #2.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #3.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #4.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #5.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #6.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### 65. To what extent do you feel you can trust this person?

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Person #2.</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Person #3.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Person #4.</td>
<td>☐</td>
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</tr>
<tr>
<td>Person #5.</td>
<td>☐</td>
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<tr>
<td>Person #6.</td>
<td>☐</td>
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</tr>
</tbody>
</table>
### Mobile Society Questionnaire (2)

#### 66. How comfortable would you feel to turn to each person listed for help or advice?

<table>
<thead>
<tr>
<th>Person #</th>
<th>Very comfortable</th>
<th>Comfortable</th>
<th>Moderately comfortable</th>
<th>Not so comfortable</th>
<th>Not comfortable at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Person #2</td>
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<tr>
<td>Person #3</td>
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<td>Person #4</td>
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<tr>
<td>Person #5</td>
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<tr>
<td>Person #6</td>
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</tr>
</tbody>
</table>

#### 67. Where does each person live?

<table>
<thead>
<tr>
<th>Person #</th>
<th>On campus</th>
<th>Off campus, but in Toronto</th>
<th>Within 1-3 hours driving distance from Toronto</th>
<th>Within 4-6 hours driving distance from Toronto</th>
<th>Within Canada, but outside Ontario</th>
<th>Within North America, but outside Canada</th>
<th>Outside North America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Person #2</td>
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<tr>
<td>Person #3</td>
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<tr>
<td>Person #4</td>
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<tr>
<td>Person #5</td>
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<tr>
<td>Person #6</td>
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</tbody>
</table>

#### 34. More close ties 3

#### 68. Where did you meet for the first time each person listed?

<table>
<thead>
<tr>
<th>Person #</th>
<th>In your neighborhood</th>
<th>In your hometown or city</th>
<th>In school (elementary or high school)</th>
<th>At the university</th>
<th>Is a family member</th>
<th>Through family</th>
<th>Online</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
<td></td>
<td></td>
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<td>Person #6</td>
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</tbody>
</table>
### Mobile Society Questionnaire (2)

**69. In general, how often do YOU call THEM using your mobile phone?**

<table>
<thead>
<tr>
<th></th>
<th>More than once per day</th>
<th>Once a day</th>
<th>A few times per week</th>
<th>Once a week</th>
<th>2-3 times per month</th>
<th>Once a month</th>
<th>Less than once a month</th>
<th>Almost never</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
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<td>Person #3</td>
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</tbody>
</table>

**70. In general, how often do THEY call YOU on your mobile phone?**

<table>
<thead>
<tr>
<th></th>
<th>More than once per day</th>
<th>Once a day</th>
<th>A few times per week</th>
<th>Once a week</th>
<th>2-3 times per month</th>
<th>Once a month</th>
<th>Less than once a month</th>
<th>Almost never</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
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</tbody>
</table>

**71. In general, which topics do you discuss with these persons on the mobile phone?**

- Classes and/or profs. in the university
- Relationships with parents
- Mutual friends
- Sports
- Family
- Personal problems
- TV programs & movies
- Romantic relationships
- Music
- Religion / Spirituality
- Fashion & clothes
- Food & diet
- Politics
- Place to go out

<table>
<thead>
<tr>
<th></th>
<th>Classes and/or profs. in the university</th>
<th>Relationships with parents</th>
<th>Mutual friends</th>
<th>Sports</th>
<th>Family</th>
<th>Personal problems</th>
<th>TV programs &amp; movies</th>
<th>Romantic relationships</th>
<th>Music</th>
<th>Religion / Spirituality</th>
<th>Fashion &amp; clothes</th>
<th>Food &amp; diet</th>
<th>Politics</th>
<th>Place to go out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person #1</td>
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<td>Person #4</td>
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<td>Person #5</td>
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<td>Person #6</td>
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</tbody>
</table>

**35. More close ties 4**
Mobile Society Questionnaire (2)

72. If the people you listed know each other, please place a check mark for the pairs who know one another.

For example, if Person #1 (e.g. Sara) knows Person #3 (Joe), click in the box in Person #1’s row, under Person #3.

<table>
<thead>
<tr>
<th>Person #1</th>
<th>Person #2</th>
<th>Person #3</th>
<th>Person #4</th>
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73. Do you use an Internet-based Social Networking service(s) (e.g. Facebook, MySpace, etc.)?

- [ ] Yes
- [ ] No

If "Yes", please enter the name(s)

36. Demographics

Almost done! To complete the survey, please provide the following basic demographic data.

74. How old are you?

- [ ] 14 to 18
- [ ] 19 to 23
- [ ] 24 to 28
- [ ] 29 to 33
- [ ] 34 to 38
- [ ] 39 and over

75. Sex

- [ ] Male
- [ ] Female

37. Born in Canada

76. Were you born in Canada?

- [ ] Yes
- [ ] No

38. Born in Canada - No (1)

77. What year did you arrive in Canada?


### Mobile Society Questionnaire (2)

#### 78. What is your status in Canada?
- Citizen
- Permanent resident
- International student
- Other (please specify)

#### 39. University

#### 79. Which university do you attend?
- Ryerson University
- University of Toronto - St. George
- University of Toronto - Mississauga
- University of Toronto - Scarborough
- York University
- Other (please specify)

#### 80. What area of study are you currently pursuing?
- Arts
- Education
- Engineering
- Health Sciences
- Information & Media Studies
- Law
- Music
- Business
- Science
- Social Science
- Other (please specify)

#### 40. Follow on study

**81. Would you be willing to take part in a follow on interview (compensation provided)?**
- Yes
- No

#### 41. Interview - yes

**82. Please provide your name and preferred contact information for arranging the interview.**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Email Address:</th>
<th>Phone Number:</th>
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</table>

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## Mobile Society Questionnaire (2)

### 42. Diaries

**83. Are you interested in keeping a call diary for 1 day? (compensation provided)?**

- [ ] Yes
- [ ] No

### 43. Diaries – yes

**84. Please provide your name and preferred contact information for arranging the diary study.**

- **Name:** 
- **Email Address:** 
- **Phone Number:** 

### 44. No informed consent

You have selected "No" to the consent question.

This ends your participation in the survey and forfeits your right to win prizes. Should you have any concerns please contact Rhonda Mctwen at mobilesociety@yahoo.ca

If you have entered "No" in error, please click on the "<<Prev" button below.

### 45. Submit

END OF SURVEY! Thanks so much for taking the time.
Appendix III

Wave 2 Interview Schedule
Mobile Society: Exploring Mobile Phones and Social Networks

INTERVIEW SCHEDULE


Before Interview starts:

- Record Participant Number on Consent Form before interview
- Go over consent form and get signature
- Give Participant Compensation
- Test the recording device
- Record/Announce Participant Number
- Record/Announce Date and your name

<table>
<thead>
<tr>
<th><strong>Interview Information:</strong></th>
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<tbody>
<tr>
<td>Participant #: (Survey 2)</td>
</tr>
<tr>
<td>Date: , 2008</td>
</tr>
<tr>
<td>Interviewer: Rhonda McEwen</td>
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</tbody>
</table>

*Note: Does the Participant have a mobile phone present?*

- Yes – What kind? _____________ (photograph device with permission)
- No

*Note: Where is the Interview being held?*

- Location: ______________
- Start time: ________:____
Introduction to Interview

First, I would like to thank you for volunteering to participate in the interview. I would like to go beyond the survey questions to discuss more about how you use communication devices, and also talk about your social interactions.

Section One: Mobile phone practices

Introduction to School Life

1. Tell me a little about where you live at the moment and about the people you live with. Who lives there and what is their relationship is to you? (check for roommate(s)/siblings/romantic partner/husband/wife/)
2. What is a typical day like for you on campus during classes? What is the routine, what do you do? (when do classes, free time, household duties, socializing, etc. take place)
3. Are things different now that classes are over? How so?
4. Do you have a set routine or schedule? How is it working for you? (too much to do, comfortable, frustrated, content) How did it come about? Are there any changes you’d make? (Spend less time doing laundry/studying, etc)
5. What do you like to do in your spare time? (by yourself, with partner/spouse/household members) (watch tv, read, play cards, go to movies etc).
6. How often do you do this? Would you do it more if you could? (Why/not?)
7. What about going out socially to visit family, friends, sorority mates, or people you are in classes with? Who do you go out with? How often do you do that? Would you do it more if you could? (Why/not?)

Like many 1st years, you indicated in both the Nov. & March surveys that you go out/hang out with friends perhaps a bit more than you would like to (#23/#25), tell me more about this. [Probe: despite this everyone goes through slower periods socially and can feel lonely during these times. Thinking back to 1st and 2nd semesters...]
8. How often did you find yourself waiting for people to call or write? [UCLA scale; often, sometimes, rarely, never].
9. How often did you feel that it was difficult for you to make friends? (Why/not?) [UCLA scale; often, sometimes, rarely, never].
10. How often did you feel that you were “in tune” with people around you?
11. How often did you feel left out? [UCLA scale; often, sometimes, rarely, never].
12. How often did you feel completely alone? (Why/not?) [UCLA scale; often, sometimes, rarely, never].
13. Did having a mobile phone affect how you felt? (In what ways?)

Computer Skills

14. Do you have landline at your home – not Skype? (Why/not?)
15. What kinds of home electronics do you have at home? (probe for games, computing communications and media)
16. What do you do with your computer? (class assignments, games, finances)
17. How comfortable are you with the computer?

[Ok, let’s talk about the Mobile Phone.]
Mobile phone use
18. How many mobile phones do you use? (if more than one, ask Why?)
19. Do you own your mobile phone? (If No, ask who does)
20. How long have you owned a mobile phone? (record in months)
21. Is it a pre-paid mobile phone or contract?
22. What made you decide to get a mobile phone (for school, parents, leisure). Who’s idea was it?
23. How has having a mobile phone affected your financial situation – in terms of buying one and then paying for usage?
24. How do you like having a mobile phone?
25. When do you carry your mobile phone with you? (all the time, when out of home, between classes, etc.). Where is the phone located when you go to bed?
26. How many minutes per day do you usually spend on the mobile phone during the week? What about on the weekend? (If different, why) (or how much time did you spend on the mobile phone yesterday? Is this typical?)
27. When do you use the mobile phone most at home? Why at this time? (Lonely, others on the land line). Is there another time when you’d rather be using it? Why aren’t you using it at this time?
28. Is your home mobile phone use different from (bar, school, café)? Why do you use the mobile phone at home? (More time? More quiet?).
29. Tell me about how you use the mobile phone. What do you with it? (talk, text, games, clock, email, photos, IM).
30. Have you personalized your mobile phone? (added a sticker, charm, ringtones, music, photo wallpaper, other adornment?) If yes, ask Why. If no, ask if any of their friends have done so and what you think of their personalizing phones.

Mobile communication:
31. Who do you communicate (talk and text) with the most on the mobile phone? Is this true regardless of where you are (e.g. home, school, bar)? Why (instead of F2F or preference of one medium over another?)
32. What kinds of things are you talking about? How much time do spend on the phone talking? How much time texting?
33. Do you ever call or text the people in your home?
34. (If yes) How much time do you spend talking/texting them? Why might you call/text them instead of talking to them face-to-face or by Internet based email? Or (if not) why do you think you don’t call/text them?
35. Has the mobile phone made communicating with people easier or more difficult?
36. What kinds of things keep you from spending more time with people on the mobile phone?

Mobile phone information and social practices
37. When your phone rings/vibrates/flashes, in most cases what do you do? (Probe for steps participant makes when receiving an incoming call, e.g look at caller-id, etc.).
38. How do you typically answer a call (a) from a caller you recognize and (b) from a number you do not recognize? I am looking for what you say/ask when answering the call.
39. If you were to receive a mobile phone call right now, what would you do? (Probe for look at caller-id, answer call, let go to voice mail, send a text, etc.)
40. What do you usually chat **about**. (Probe for seeking information about meeting coordination, asking about someone’s location, passing time?)
41. Do you use your **mobile Internet**? If yes, what are you doing? (looking for information online, sports scores, email?)
42. What do you do if you **cannot** get the information that you are looking for via the mobile phone? (Internet, nothing)
43. How did you look for this information **before** you had a mobile phone?
44. If something came up during the day, and you **needed** to contact someone, what would you do? Would you go call/text on then mobile phone, go online?
45. How do you **feel** about using your mobile phone number as a general contact for you?
46. After **meeting someone for the first time** who you would like to connect with again, what contact information would you give to them?
47. Who would you **not give** your mobile phone number to? (Professors, strangers, parents, ex-boyfriend/girlfriend?)
48. Do your **close** friends have mobile phones?
49. Does this make it **easier/or more difficult** to stay connected and close to them?
50. What kinds of things do they do with the mobile phone? (mainly talking, texting, gaming).
51. Sometimes when people are **together** face to face, one receives a mobile phone call. Has this ever happened to you? If yes, tell me about how you felt when your friend was on the phone. Did he/she apologize, step away, include you in the conversation?
52. Do you use your phone to communicate (voice or text) with someone before you meet them **face-to-face**, during the meeting and/or following the meeting?
53. Do you have any **concerns** about mobile phone use? (cost, health). If yes, how do you deal with this?

**Sharing Mobile Phones**
54. Some people **share** their mobile phone, SIM card, or mobile phone minutes with others. Do you? If yes, with who? [if “no” skip to next section.]
55. Who makes the **decisions** about the mobile phone is shared (who gets how much time, when to use)? How come?
56. What about **contact lists** on the phone? Do all parties add contacts to the same device?
57. Do you have a **routine** set up for your mobile phone use? How is it organized? (For example, a schedule)
58. Who made this **schedule**? Why did he/she do it and not someone else?
59. Do you **like sharing** a mobile phone? Why?

**Feeling about Mobile Phones**
60. Someone commented to me recently that they felt that their mobile phone was part of them… thinking of your own mobile phone, how do you feel?
61. Have you every lost or forgotten your phone at home? How did you feel?
62. Do you every do to a family/friends cottage? How is the mobile phone access then? Tell me how it affects your enjoyment at the cottage, if at all.

[INTERVIEWER MARK TIME ON THE RECORDING _______ :_______]
Section Two: Name Generator

N.B All prompt cards (Red, Yellow, and Green) are at the end of document.

Mark Colors: (you should use the same colors for the stickies and for the lines)

Very Close: __________________________

Somewhat Close: ____________________

1. Familiarization

Let's talk about your family and friends both on campus and off-campus. In the survey, I asked you about people who are Very Close and Somewhat Close to you (present card 1- RED). Just to remind you:

VERY CLOSE:
- discuss important matters with, or
- regularly keep in touch with, or
- there for you if you need help
- includes romantic partners.

SOMewhat CLOSE:
- More than just casual acquaintances, but not ‘very close’.

2. Name Generating

Okay, now think of people who fit that "Very Close" description. Please write down the names of people you feel very close to at this point in time.

Now think of people from this list who fit that "Somewhat Close" description. Please write down the names of people you feel somewhat close to at this point in time.

INSTRUCTIONS: Once they are done, refresh their memory using the 2-Yellow card*. They should look over each category.

Now, just to make sure that I got all of the people that you are somewhat close to and very close to, on the 2-Yellow card is a list of the different ways you might know people. Have a look at this card and see if it refreshes your memory.

NOTE: this might or might not generate additional names.
NOTE: A couple would have two strips – one for each person. Handle separately.
NOTE: check for duplicate names (get last initial to differentiate).

INSTRUCTIONS: Once they are done, introduce the names from the November and March surveys to see if there have been changes/missing names/new
names or simply to refresh their memory. The November names should be written on pink stickies and March names on yellow stickies.

OK, here I have the names of the (1-6) people that you provided as the persons that you communicated with most by mobile phone in November 2007 and March 2008. [Present the lists]. Please review them now. If there are there names that you would like to include from this list, please do so now.

3. Roles – Multiplexity

INSTRUCTIONS: Respondents should write one or more numbers next to each name. The number corresponds to the numbers on the 2-YELLOW card.

Now that I have some names, I would like to know the different ways in which you know these people. Next to the names on the strips, please write down the number corresponding to the ways you know this person.

If you know the person in more than one way, please write down all the corresponding numbers in upper left side of strips. For example, if you met a friend at university, write 1 for met at university and 7 for friend.

Underline the primary way that you know this person.

NOTE: Grandparents are other relatives.

4. Plotting Networks

INSTRUCTIONS: They will build a social network in two stages:
   1. Laying out the stickies
   2. Drawing the lines. Read out the following instructions to help them lay out the stickies.

Here is the sheet where I will draw your social network. It will look something like this when it is done. [show them an example sheet]

1. Start with the very close names
2. Put the people who know each other closer together, and
3. Put the people who you feel closest to nearest to you

NOTE: None of the little stickies should overlap.
NOTE: Sticky part on the line.

4. Now let’s add the somewhat close names
5. Try to use all the circles, you can rearrange the names until you are happy with it
5. **Media – Mobile phone network**

*INSTRUCTIONS:* Once they are done, identify the devices used regularly for daily interaction with persons identified using red dots.

Please place a "red dot" sticker on the right side of the names of persons in the rings who you do not communicate with using your mobile phone. For these persons, how do you communicate with this person?

Write “E” for email; “F” for face-to-face; “L” for land-line; “IM” for instant messenger; “S” for social networking software (e.g. Facebook).

6. **Network connectivity**

*INSTRUCTIONS:* This is the second stage, and it’s tricky so take your time. They will draw lines between people who know each other, and do this IN SEQUENCE.

*NOTE:* Very and somewhat close pen colors should match very and somewhat close sticky colors. **

- **Step 1:** Circle groups of people who are very close to each other. (*NOTE:* This will probably be a group of immediate family)

- **Step 2:** Draw lines between pairs of people who are very close

- **Step 3:** Circle groups of people who are at least somewhat close. This circle can include people who are either very close (since the line is already drawn) or somewhat close. (*NOTE:* This will probably be a group of friends or workmates)

- **Step 4:** Draw lines between pairs of people who are somewhat close

*NOTE:* People may want to draw a line from a group (or circle) to a name outside the circle this is okay but it should be clearly drawn.

7. **Reasons for closeness**

So now I know what your social network looks like. I can move on to find out a little about these people.

First I’d like to know a little about what very and somewhat close means to you.
INSTRUCTIONS: Use card 1 (RED) again. I will be looking for the person with the lowest “rank number” in each of the four rings (total four people). Do the following for each person:

1. You said that this person was [Very/Somewhat] Close. Looking again at the four reasons for closeness which of them does this person fill? It is okay if they fit all of the reasons, just one, or none.
2. Are there any other reasons that you had for deciding that this person is [Very/Somewhat] close which I didn’t include?

NOTE: If they only have people in three rings, get the second-lowest person from the centre ring.

8. Network members in detail and frequency of media usage
For this section, I am going to do a little mini survey on some of the people in your social network. I will be talking about how you communicate with them. [hand them the sheet] – if some of these don’t apply, just skip that part. I’ll be doing this with you in case you have any questions. (NOTE: Instant Messaging won’t apply to most people)

INSTRUCTIONS: For this section, you will sample people from the network based on their rank number (regardless of whether they are the lowest “somewhat” or “very” close people)

Step 1: Take the two lowest numbers from the centre circle.
   • Mark a * on those names.

Step 2: “working your way out of the rings”
   • Start with the inside ring. Do the following until you have 7 people in total or until you run out of people.
     i. Find the person with the lowest number that doesn’t have a *
     ii. I shouldn’t get two people from a couple. So if a person’s partner is already got a * then get the next lowest person. Ask the respondent.
     iii. Mark a * on that person.
     iv. Move out to the next ring (if you are at the outermost ring, go back to the inner ring)
     v. Go back to ‘i’
When you are done, complete the mini survey with the people who have *’s next to their names.

NOTE: probes for the out-loud questions in the mini-survey:

- Job: [includes homemaker]
- Ethnicity: [if they say Canadian, prompt where the family is originally from]
- Where does he/she live? If in the Greater Toronto Area, what’s the intersection; otherwise, what’s the city [If GTA, try to get as much as detailed information here; e.g. West / East]
- Where do you usually see him/her? If in the Greater Toronto Area, what’s the intersection; otherwise, what’s the city [If GTA, try to get as much as detailed information here; e.g. West / East]

9. Social Support Questions
[prompt card 4 – Green]

Now, I would like to ask you some questions about information and advice. (No sample on this one, just whoever they say in their network)

Who has given you help with the following:
- Help with assignments/projects
- Advice on important matters
- Advice about family/relationships
- Short loans
- Help with organizing an event (e.g. BBQ)
- Advice on fashion/music
- Advice on repairing a car/bicycle
- Help with finding a hairstylist/barber
- Advice on where to find good deals
- Who do you just talk about the day with?

10. Comparing November to March
[prompt with list of names provided in November and March, for each name appeared in November but not in March or for each name that changed from “Very Close” to “Somewhat close” at those two data points, ask the following]

- I notice that X appears in November as (Very Close or Close) and that this changed by March. What caused the change in relationship? How did your mobile phone communication with this person change? [If they no longer appear in the March list ask] Are they still in your mobile phone address list?
  [For names that appear for the first time in March ask] What is your relationship with X? How frequently do you communicate with them on mobile phone? Are they in your mobile phone address list?
Conclusion
That concludes our interview with you today. Do you have any other comments or questions?

Thanks so much for taking the time to talk to me!

Participant comments:

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Interviewer Notes:

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Appendix IV

Linear Regression Analysis
Linear Regression Analysis

In the analysis of the data from this study regression analysis did not provide conclusive predictive proofs, however, as demonstrated below in many cases regression analysis did further demonstrate the manner in which mobile phones have become integrated into the daily lives of first-year undergraduates in Toronto regardless of gender, age (within the 17-34 age range of participants), or reasons for using the devices.

In the following example, I tested whether frequency of use of the mobile phone was an outcome that could be predicted from a combination of age, gender, and using the mobile phone for social connections. Parents and other adults who use the mobile phone for mainly instrumental (task oriented) purposes often express the view (a) that younger adults (17-22 years old) use the mobile phone daily because they are younger and adopt technologies to a greater degree than older adults; (b) that young females are particularly associated with daily mobile phone use; and (c) that it is the use of the device for social connections that drives daily usage. To test this viewpoint I conducted a linear regression analysis of daily mobile phone use with the three aforementioned variables mentioned: age, gender, and social connection.

In an examination of the output from this linear regression analysis I used the p-value of the F-test to indicate the significance of the overall model, using the standard that a p-value of zero to three decimal places deems the model to be statistically significant. The R-squared is 0.543, meaning that approximately 54% of the variability of daily mobile
**phone use** is accounted for by the three variables in the model. In this case the adjusted R-squared does not shift the R-squared value again indicating that about 54% of the variability of **daily mobile phone use** is accounted for by the model, even after taking into account the number of predictor variables in the model. The coefficients for each of the variables indicates the amount of change one could expect in **daily mobile phone use** given a one-unit change in the value of that variable, given that all other variables in the model are held constant. For example, consider the variable **Sex (i.e. gender)**. I would expect an increase of 0.007 in the **daily mobile phone use** score for every one unit increase in **Sex**, assuming that all other variables in the model are held constant. This indicates that gender does not significantly vary whether or not participants use the mobile phone daily. I would expect an increase of 0.637 in the **daily mobile phone use** score for every one unit increase in participants perceptions of the **importance of using the mobile phone to maintain social relationships**, assuming that all other variables in the model are held constant.

I also compared the relative strengths of the coefficients of the three model variables to see which of the three would yield the largest or smallest changes to the outcome of a daily mobile phone use. To do this I referred to the Beta coefficients (or standardized regression coefficients). In this model, **age** (i.e. response to the question *how old are you*) has the largest Beta coefficient, -0.019, and **social connection** (i.e. response to the question about importance of using the mobile phone to maintain social relationships) has the smallest Beta, 0.745. Thus, a one standard deviation increase in **age** leads to a 0.019 standard deviation decrease in predicted **daily mobile phone use**, with the other variables
held constant. And, a one standard deviation increase in social connection, in turn, leads to a 0.745 standard deviation increase daily mobile phone use with the other variables in the model held constant.

<table>
<thead>
<tr>
<th>Variables Entered/Removed</th>
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<tr>
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a. All requested variables entered.

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<tr>
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a. Predictors: (Constant), How important is the mobile phone in helping you maintain social relationships? , Sex, How old are you?

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a. Predictors: (Constant), How important is the mobile phone in helping you maintain social relationships? , Sex, How old are you?

b. Dependent Variable: Do you use the mobile phone every day?
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<tr>
<th>Model</th>
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<td>How old are you?</td>
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<tr>
<td>How important is the mobile phone in helping you maintain social relationships?</td>
<td>.637</td>
<td>.086</td>
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</table>

a. Dependent Variable: Do you use the mobile phone every day?